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Telephony

THE JOURNAL OF THE
TELEPHONE INDUSTRY

SUCCESSFUL OPEN HOUSE

Among the visitors to Sunland-Tujunga Telephone Co.'s recent Open House was Junior Chamber of Commerce President James M. Bass and his family. Allan R. Stacey, Sunland's president, greets Jimmy Jr. with a souvenir telephone. See page 35 for story.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

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FLASHES AND PLUGS

FLEDGLING ON THE SUCKER LIST. A 17-year-old Milwaukee boy saved $1,500 from his paper route, which he invested in a savings and loan association, reports the *Milwaukee Journal*. Recently he has been writing to investment houses for information on higher dividend stocks and bonds.

The other evening he received a long distance telephone call from Toronto, Canada. A slick talking man had a proposition. If the boy acted fast, he could buy 50,000 shares of mining stock for only 57 cents a share.

"I'll have to talk this over with my dad," said the young financier.

"How old are you?" the man asked, suspiciously.

The boy told him. There was a gasp at the other end of the line, a confused "good-by," and the prospective investor still has his $1,500.

•

ALL IN THE DAY'S OCCUPATION. A Milwaukee tavern operator has a telephone number that is almost like the new number that a local brewery has for people to call for the latest baseball scores.

So many people have been calling the tavern by mistake that the owner has had to revise his telephone answering procedure to save time. Now it goes something like this:

"Braves 10, Phillies 2; Lucky 7 Bar."

•

WHY NOT TELEPHONE? A flight of bombers had ranged far and wide over Germany, spreading tons of propaganda leaflets. All planes returned safely to base except one. Hours passed. Night fell. Still no plane. Finally, its engines were heard and as it landed, the operations officer ran out to the plane. "Where have you been?" he yelled.

"I delivered the leaflets, that's all," was the reply.

"How long does it take you to drop leaflets?"

"Drop 'em?" said the pilot. "We were stuffing them in mail boxes!"

•

PUNNING PARSON. The operator at Clarks, Neb., asked the reverend gentleman if his call was person-to-person.

She was told, "No, this is parson-to-parson," reports the Northwestern Bell magazine.

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1904

July 20, 1957

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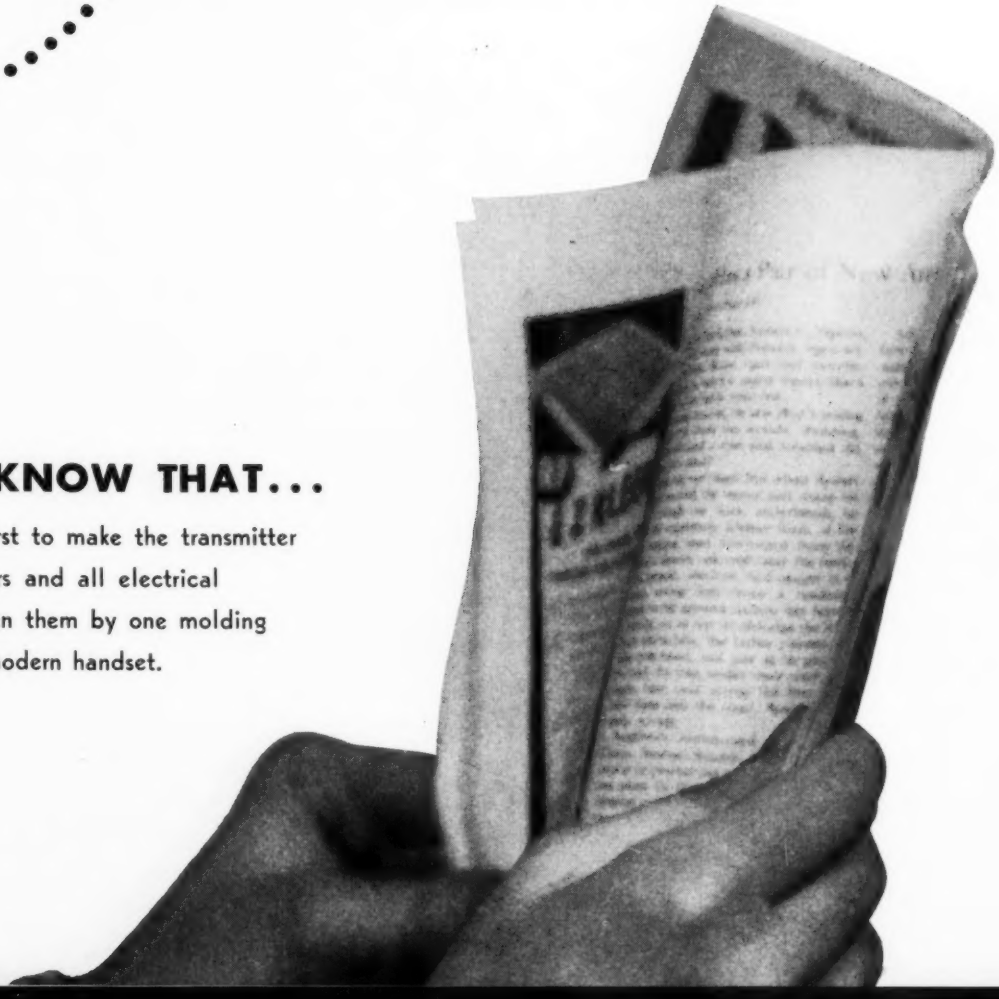

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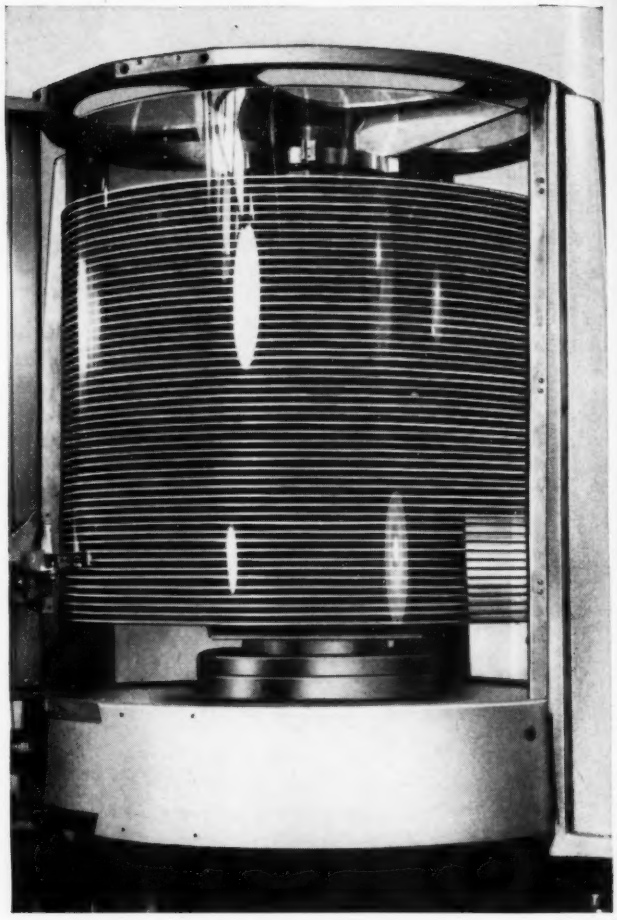

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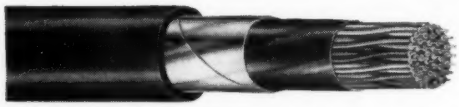

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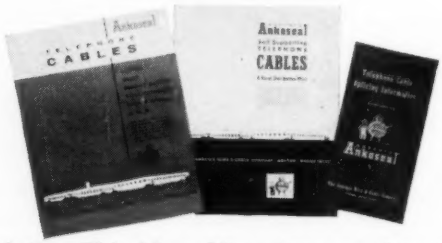

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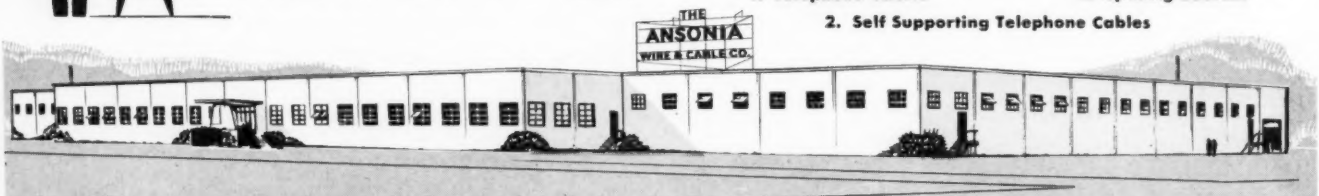

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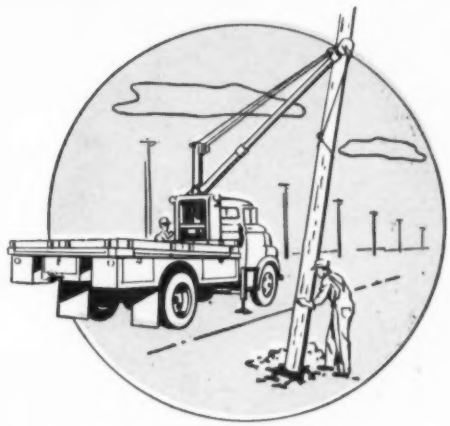

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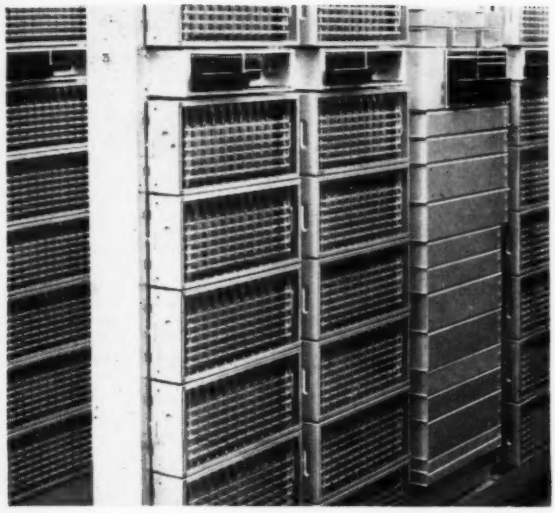

Recently the management of the Mansfield, Ohio, Telephone Company appraised the industrial, commercial, and residential growth of their city. They projected future requirements on the telephone system. They took a searching look at the advances that would shortly become reality in the telephone industry.

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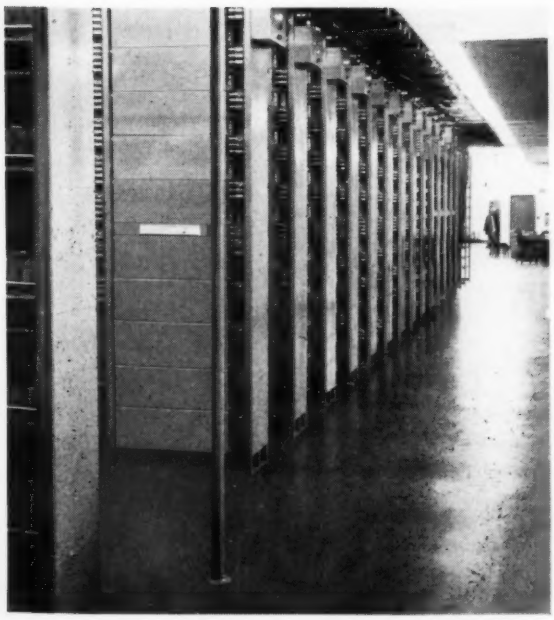

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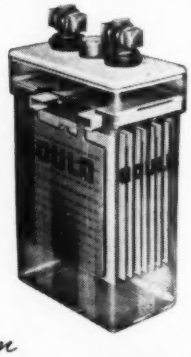

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

Discusses effect of "tight money" policy on rates of all public utility companies. FCC Chairman Doerfer, as a forthright administrative regulatory official does not expect to be a "popular pet with Congress." REA grants 1000th telephone loan.

IS THE continuation of the administration's "tight money" policy going to mean that telephone companies and other utilities are going to have to get higher rates for service than would otherwise be necessary? Recently, both the gas and electric utility companies serving the Chicago area were obliged to ask the Illinois Commerce Commission for substantially higher rates. And one of the main reasons given by Wills Gale, chairman of the board of Commonwealth Edison Co., was "higher money costs and rising prices."

Of course, the higher money costs are supposed, under the administration's policy, to put the brakes on the rising prices. That this brake is not working as expected is obvious enough, because prices are still rising. But that brings up another important point, whether the brake is working at all. If it is, and if prices would be rising much higher and faster if there were no hard money policy, then the utilities are confronted with an even more vexing question. That is, whether they would be better off paying more interest for less borrowed money or less interest for much more borrowed money which would be needed. Obviously rising prices would mean that more money would have to be raised to take care of the same amount of plant expansion.

Mr. Gale, explaining his company's proposed rate increase, stated:

"The proposed increase is closely related to our obligation to provide the tremendous expansion of electric facilities needed to keep pace with the growth of the Chicago area. The increase is also closely related to the marked rise in interest rates which substantially increases the cost of financing the expansion program. These costs, plus higher taxes, rising wages, and other operating expenses make it necessary for us to have more revenue in spite of the savings made possible by operating economies and generally increased efficiency.

"Commonwealth Edison this year alone is spending a record 190 million dollars on new construction and our expansion program for the four years, 1957 through 1960, aggregates 650 million dollars. In the preceding 11 years, we spent more than 1 billion dollars on new construction, so that our expenditures for the 15-year period, 1946 through 1960, will total 1 2/3 billion dollars.

"It will be necessary for Commonwealth Edison to raise approximately 280 million dollars of additional new money to help finance the current four-year program. It is vital, therefore, that our credit be maintained at its present high level."

Reporting on Bell System earnings for the second quarter of 1957, Frederick R. Kappel, president of American Telephone & Telegraph Co., also cited the high cost of money and the continuing increase in other costs as underlying the need for higher telephone rates generally.

Yet, retiring Secretary of the Treasury George M. Humphrey, on July 10, told the Senate Finance Committee that interest rates may go still higher before the present inflationary situation is brought under control. Recently a large and well-established electric utility had to pay 6½ per cent for new bond money, and utilities generally are hearing more and more talk about "6 per cent bonds" as if this were definitely in the cards. Of course, if bonds go to 6 per cent, common stock dividends will have to go to 8 per cent or more to attract the so-called "risk investor."

Since utilities rely heavily on bond issues to finance expansion and, in selling bonds, have to pay going interest rates, the point is being made that Washington's fiscal and monetary policies are raising costs and that these are, in turn, reflected in rate increases being granted by public service commissions. Representative Patman (D., Tex.), during the month of May, inserted in the *Congressional Record*, along with comments of his own, an article from *The Wall Street Journal* of Mar. 13 headlined "Utilities Seek New Rate Increases as Borrowing Costs Rise." The newspaper article was based on a survey of more than half of the nation's public service commissions and others.

But, Herbert Bratter, Washington economist, disagrees that utilities would be any better off if the money rate eased—assuming that prices would rise proportionately. Indeed, Bratter thinks, in such a situation, utilities would be infinitely *worse* off. Writing in the current (July 18) issue of *Public Utilities Fortnightly*, he finds that for all public utilities, interest in 1953 (no later figure available) constituted less than 3 per cent of total business expenses. For communications utilities it was only 2.6 per cent. Bratter goes on to show that "a 25 per cent increase in the contractual interest rate—from 4 per cent to 5 per cent—other costs remaining unchanged, increases the annual financing cost including interest payments and amortization by 2.68 per cent.

In contrast, if the contractual interest rate remains at 4 per cent but *construction* costs rise by 25 per cent, both annual interest charges and amortization payments must be larger, for the expansion project will cost 37.5 million dollars instead of 30 million dollars; and the annual financing cost is 25 per cent greater than under our first assumption.

Hence, Bratter concludes:

"Therefore, if the monetary policy of Washington is aimed at preventing in-

flation and succeeds in doing so, to that extent it avoids a greater evil at the cost of a lesser one. Certainly a 25 per cent increase in the price level—*i.e.*, in the cost of goods and services—would be far more expensive to utilities having to borrow and to their customers who have to pay rates that take all costs into account than would be a 25 per cent increase in the cost of long-term money. Cheap money facilitates inflation. If the money supply is artificially increased the resultant spending by the people and business will certainly tend to raise prices and costs. . . ."

It follows that, if public service commissions are granting utilities rate increases on the basis of higher operating costs, they are responding far more to the results of inflation than because of dear money. Higher interest and other costs are, of course, of concern to the public utilities but they are of no less concern to the ratepayers to whom public service commissions have to pass them along.

Two senate committees are now investigating the hard money problem and what to do about it, if anything. One of these is the Senate Finance Committee, headed by Senator Byrd (D., Va.). The other is a sub-committee of the Senate Judiciary Committee, headed by Senator Kefauver (D., Tenn.), who is taking the anti-trust approach. Both are handicapped in dealing with such a delicate economic problem by the political ramifications which are so tempting to a senator and can so easily obscure the true factors to be considered.

Senator Byrd has been trying to get the facts in the face of these political temptations, and Senator Kefauver seems to be guided by Oscar Wilde's cynical aphorism that "the best way to be free of temptation is to yield to it." We all need to know how prices are adjusted in our relatively free economy. The advent of big unionism balancing big business raises new problems in this field. Senator Kefauver begins his study in the wake of the latest wage-price boost in the steel industry. Undoubtedly this key increase will figure heavily in his inquiries.

Undoubtedly few firms can raise their prices exactly as they like. Several steel makers have protested that the recent average increase—$6.00 a ton—was too small. Why was it not pressed higher? Doubtless there were many reasons. But, always in the background is the understanding that there is a point beyond which the traffic will not bear further price increases.

Steel makers raise another point when pressed about heavy new investment out of profit (profit has, in some degree or other, always been a source of new investment). They say the replacement reserves allowed against taxation are insufficient. This is because the tax laws authorize depreciation credits only in terms of the historical or original costs of the facilities that are wearing out. But inflation has already doubled and tripled these replacement costs. Even so—do not new steel price increases spark still more inflation?

Public utilities are certainly not in the same position as steel as far as price rises are concerned. Their rates are rigidly controlled by regulatory agencies which can be subjected to political pressures in some cases. History of utilities in other countries has shown that they stand in far more danger from price inflation than they do from credit restrictions. Hard money means difficult financing and may even curtail needed plant expansion. But runaway price increases can mean such a lag in rate adjustment that the whole operation can become unprofitable or even deficit making. This could lead to a default in private utility investment entirely. The nationalization of foreign utilities has happened more often as a result of private investment default brought on by inflationary trends than by any studied policy of government ownership, as such.

Volume Number Change

An error was made in indicating the volume number of the first two July issues of TELEPHONY. Volume number changes occur every six months, on the first of January and the first of July.

Thus the July 6, 1957, issue should be Volume 153, No. 1 instead of Volume 152, No. 27 as published; and the July 13 issue should be Volume 153, No. 2.

Doerfer Interview

The new chairman of the Federal Communications Commission, John C. Doerfer, admits that he does not expect to be a popular pet with Congress. Unlike many less forthright administrative regulatory officials, Doerfer frankly stated, in an interview, that he thinks Congress has been "too solicitous of the alleged rights of broadcasters."

For example, the present Communications Act, under which the FCC has to operate, was amended by Congress in 1952 so as to permit anyone to challenge an action of the FCC. This amendment was put in ostensibly to protect the rights of broadcasters. And it came to be known as the "protest amendment." Doerfer says he would abolish it because it has become a nuisance. It has caused long delays in commission rulings becoming final. It almost puts broadcasters, with an otherwise weak case, in a bargaining position based on nuisance value, because they have a right to exercise their "protest" regardless of its merits.

Doerfer, who has been a member of the FCC since he was drafted by President Eisenhower from the Wisconsin Public Service Commission in 1953, is an outspoken regulator who does not hesitate to express himself clearly and frankly. The fact that these views collide with those of a good many members of Congress on radio and TV issues does not deter him from saying what he thinks. Doerfer, for example, is in favor of letting those television operators, who want to do so, experiment on a commercial basis with pay-as-you-see television — otherwise known as subscription television. Doerfer says that pay television is entitled to a fair trial to determine whether the people want it. But, some Congressmen are reflecting an unfounded fear (which a good many citizens of our country seem to have) that allowing pay-as-you-see TV would somehow eventually result in curtailment or otherwise injuring our present free television. The present television networks have not exactly done anything to discourage that fear on the part of the public.

Doerfer stressed that any demonstration of pay-as-you-see TV should be under "strict control." He said he would not allow it in places of less than four TV outlets. "I'm in favor of a trial run, with complete protection," he said, "so that free TV won't be blasted out of the country." The FCC set July 15 as the deadline for comments by advocates and opponents of subscription television. Doerfer indicated he expected the go-ahead for a test will be given.

Doerfer is a strong defender of "free competition" in broadcasting, he still is not convinced that the "option time" and "must buy" policies of the networks are "predatory," regardless of how Congress feels. "Must buy" requires advertisers to buy time on a minimum number of the network's affiliates. "Option time" gives the networks the prime evening viewing hours. Two congressional staff reports have blasted the practices and called for more FCC regulation. Doerfer said there may be some "need for correction" but this will have to await a commission study, due at the end of September.

1,000th REA Loan

Administrator David A. Hamil of the Rural Electrification Administra-

(Please turn to page 43)

Relationship of State and Federal Regulation of All Public Utilities

By RULOM E. LARSEN*

IN NEARLY every state of the Mountain-Pacific group, one or more new commissioners have taken office in 1957. In Idaho, there are two new members on the commission. In many states the commission staff members hold over, and it is only natural that they be asked to brief the new commissioners on many regulatory matters and particularly on staff functions. This is all to the good as it enables the staff members to review the application of fundamentals in the regulatory processes in the light of changing conditions.

Some of the more baffling problems which come before state regulatory bodies involve the relationship between state and federal regulation of common carriers and public utilities. I feel that this relationship should be one of cooperation. Federal regulation has its place primarily in the regulation of interstate operations. State commissions have their place primarily in the regulation of intrastate operations. While the line of demarcation between intrastate and interstate seems to be variable for different utilities, it can usually be followed without too much difficulty if there is proper cooperation between state and federal agencies.

There are five federal agencies, as discussed below in the order of their creation:

Interstate Commerce Commission has jurisdiction over interstate common carriers, primarily railroads, trucks and buses.

Federal Power Commission has jurisdiction in the matter of interstate rates and service of electric power and natural gas utilities.

Federal Communications Commission has jurisdiction over the interstate rates and services of telephone, telegraph utilities, and operation of radio and television companies.

Securities and Exchange Commission, which was created under the Securities Act of 1933 is given authority over all securities sold in interstate commerce. The Public Utility Holding Company Act of 1935 gives the commission special regulatory jurisdiction over public utility securities and the power to simplify and integrate public utility holding companies.

The Civil Aeronautics Board regulates rates and determines routes of air lines.

Single Commissions

In contrast to the Federal agencies, which are restricted to the regulation of specific utilities, all the Mountain-Pacific states with the exception of New Mexico have placed the regulation of all intrastate utilities under a single commission.

In many matters, the federal government has pre-empted the field, and federal legislation or regulation takes precedence over state legislation or regulation. For example, the federal regulatory authorities have provided a uniform system of accounts and depreciation rates for some of the utilities. They also require approval of construction programs. All this is considered essential to the authorization of interstate rate levels.

Now, obviously, with the uniform system of accounts prescribed for interstate business, it would be impractical to have a conflicting system and, consequently, another set of books for intrastate business. Accordingly, many of the states have approved the federal system of accounts for utilities within their jurisdiction, and sometimes have adopted additional, but non-conflicting requirements.

The same is true as regards depreciation rates. In many public utilities, the same property is used indiscriminately for both interstate and intrastate service. Obviously, it would be impractical to have two different depreciation rates for the same class and kind of property, even for the same property, in some instances. Some of the federal commissions consider the views of the states concerned before new depreciation rates are authorized, and thus the rates may be said to have been set on a cooperative basis.

Cooperation Necessary

Also, some of the federal bodies, as well as many of the state agencies, require the submission of construction programs prior to the time work may be started. This is true whether the construction crosses state lines or is wholly within the state. Often, the use of the property under construction will be for both intrastate and interstate service. Difficulties would certainly arise were the federal agency to approve construction and the state agency to decline to approve it. There would be delay from which the utilities and their customers might suffer.

Since the purpose of regulation is to aid in the provision of good, dependable utility service, regulation defeats its own ends when there is not uniformity in many of the matters in which there are joint regulatory responsibility.

With many overlapping areas, it is necessary that there be a great deal of cooperation between state and federal regulatory bodies and, in some instances, between the regulatory bodies of adjoining states. There is no need for these overlapping areas of authority to cause trouble. Rather, good, sound common sense would dictate that there be cooperation with a consequent saving in time and expense, not only to the utility and, therefore, its ratepayers, but also to the taxpayers of the several governmental groups.

California Case Cited

A substantial problem of joint regulation is encountered with the railroads and other common carriers operating in both interstate and intrastate commerce. In the postwar period there have been 13 increases granted to the railroads by the Interstate Commerce Commission. While, in many instances, there were state cooperating commissions sitting in at the hearings, the final decisions rested with the federal regulatory body.

Under Section 13 of the Interstate

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Commerce Act, it is claimed that, when interstate increases are approved, the states must permit comparable intrastate increases in order to avoid undue advantage, preference, prejudice, and discrimination. There is often a lag between the interstate increase and the intrastate increase. Sometimes the states have denied an intrastate increase, such as the action of the California commission in its decision of Dec. 11, 1956.

The basis of the California denial goes to the heart of the conflict between state and federal regulation of railroads. The California commission felt it necessary to ascertain the separate intrastate revenues, expenses, and property with respect to the railroads as is done in telephone regulation. The railroads contended that reliable separations of intrastate operating expenses and investment were unnecessary, and could not be obtained. The commission commented that the testimony conveyed the impression of a manifest desire to search out reasons why the separations could not be made instead of a willingness to adopt an open-minded attitude in the solution of the problem. The commission recognized that allocations, in many instances, would be necessary, but thought that, with experience, the studies would gradually become more accurate and more reliable. It was felt by the California commission that modern electronic computing machines would expedite and facilitate the processing of the large masses of statistical information required for the allocations.

The railroads opposed the separation as unnecessary, taking the position that under Section 13, the rates should be comparable, regardless of any intrastate operating separation. The commission decision was appealed to the Interstate Commerce Commission under a Section 13 proceeding.

Separate Rail Traffic

A somewhat new twist in rate case procedure was recently proposed by the New York Central Railroad. In its current case before the New York Public Service Commission, Central separated out its Westchester commutation business from the rest of its far-flung operations. I think we should watch the developments in this case closely. It may offer some means of working on intrastate railroad rates that has not heretofore been considered. In other words, if the New York Central Railroad can separate out Westchester County business, maybe it can separate out intrastate business. If the Central can separate out intrastate business, other railroads in other parts of the country may be able to do the same.

The electric power companies, not only in Idaho, but nationwide, have had, until very recently, comparatively few rate increases in the postwar period compared with common carriers and telephone companies. Tremendous increases in home use of electricity have come through refrigeration, automatic laundry equipment, dishwashers, air conditioners, furnace controls, television, and many other appliances, all financed by the consumer rather than the utility. Electric companies merchandising has had a tremendous effect on this facet of our economy. The result has been more electric load per meter, and hence more electric revenue per customer without a corresponding increase in the utility's investment. The electric companies have the advantage of hundreds of salesmen outside of their employ who are selling appliances to make living more convenient, but are, incidentally, selling electric load for the utility.

Hell's Canyon Project

New problems are coming up. You are all familiar with the controversy over the Hell's Canyon hydroelectric power sites on the Snake River between Idaho and Oregon. Some people wanted one big government dam. The Idaho Power Co. wanted to build three smaller dams with private capital. The Idaho commission supported this view. The Federal Power Commission granted the petition of the Idaho Power Co. to build smaller dams. Conceivably, there would be further activity in connection with this matter. As of now, the orders of the Federal Power Commission are the last word. Idaho Power is going ahead with construction of its first dam at Brownlee. This is, possibly, not a case of conflict between intrastate and interstate regulation. It is more a contest for authority to build and serve between advocates of public ownership and supporters of our traditional conflict of private enterprise.

(EDITOR'S NOTE: A House Interior sub-committee on July 2 killed a bill which would have authorized the federal dam in Hell's Canyon instead of the three dams to be built by Idaho Power Co. Last month the Senate voted for such a federal project.)

The theory of partnership between the government and private industry in the development of water power has been discussed at length in the last few years. The very concept of a partnership arrangement may help to reduce or avoid conflict between federal and state regulation.

The Rural Electrification Administration Act permits cooperative organizations in rural areas to generate, transmit and distribute electric energy. In some states the REA co-ops are subject to state regulation, and in others they are not. Proposed legislation in the 1957 New Mexico Legislature would give them the option of submitting to commission regulation. In all cases, their rate schedules must be approved by the Rural Electrification Administration prior to loan authorization. I am not here arguing the merits of the REA program, merely citing it as an instance in which federal authority appears to have encroached on state regulation of power distributors.

Atomic energy is relatively new to the field of regulation and, to date, has been under the jurisdiction of the federal government. However, if the states expect to occupy their traditional field in the regulation of the industrial use of atomic energy for power purposes, they must act promptly. First, they should seek in the Congress of the United States, legislation making it clear that the federal government does not intend to occupy the field of regulation to the exclusion of the states; and secondly, they must prepare themselves, not only for the privileges of regulating these matters, but also to discharge efficiently the burdens and responsibilities which always accompany such privileges. Committees of the National Association of Railroad and Utility Commissioners (NARUC) are actively considering these matters.

Liberalized Depreciation

Few provisions of any federal revenue act have caused as much confusion, controversy, or argument as those contained in the so-called "Liberalized Depreciation Rules of the Internal Revenue Code of 1954."

Although regulatory policy on this important matter is not completely uniform, there is a definite pattern established. Twenty-four state commissions, which have made accounting rulings, have provided for charging the differentials arising from the use of liberalized depreciation to operating income. Only one state commission, in a rate proceeding, has not recognized the differentials in such fashion. The Federal Power Commission has also held the differentials chargeable to operating income. Consideration is now being given the matter by the Federal Communications Commission, pursuant to the General Telephone Corp.'s petition of Sept. 25, 1956. The Wisconsin commission has filed an objection in this case.

There are two major types of telephone service. Briefly stated, one type is called exchange service and covers

telephone calls within a community; the other type is called message toll telephone service and covers calls between communities or cities. Message toll telephone service contrasts with exchange service, largely, in the fact that it is nation-wide in scope, and the rates charged for the services are based, primarily, upon actual minutes of conversation and distance for each call; whereas, exchange service is confined to local calling areas and is usually billed on a flat, monthly charge for unlimited usage. Toll calls originate in all exchanges of the nation—some large, some small, some Bell System exchanges, and some Independent telephone company exchanges. Some toll calls originate in one state and terminate in another, while other calls are confined within state boundaries. Yet, all toll services are intimately bound together in a highly integrated network of telephone circuits and facilities.

Toll Rate Disparity

Rates charged for message toll service, when passing from one state into another, are fixed by the Federal Communications Commission; whereas, the rates for toll messages within a state are subject to the jurisdiction of the regulatory commission in that particular state. Serious disparities in rates have arisen between those fixed for interstate service compared with those for calls within state. There is also a wide variation in rates in one state as compared with those of other states.

To illustrate some of the outstanding examples of dissimilarity in interstate rates, the initial station day rate from Seattle to Vancouver, Wash., is $1.00; whereas, the rate from Seattle to Portland, Ore., seven miles further, directly across the Columbia River from Vancouver, is only 65 cents. The initial station day rate from Boise to Lewiston, Ida., is $1.05; whereas, the rate from Boise to Clarkston, Wash., just across the state line from Lewiston, is only 75 cents. The initial station day rate from Phoenix to Yuma is 90 cents; whereas, the rate from Phoenix to Winterhaven, Cal., is 70 cents. Winterhaven is just across a river.

In Idaho, you can call 174 miles for $1.00 intrastate and 316 miles for $1.00 interstate; in Arizona you can call 246 miles intrastate for $1.00 and 316 miles interstate for $1.00. It is impossible to explain reasons for these differences in rates to the satisfaction of the public since, really, there is no logical or plausible explanation.

The real reason, as you and I know, is due to the many separate and individual approaches to the toll rate structure under the various state and federal jurisdictions and the consequent impractical past attempts to allocate revenues and costs to these jurisdictions.

Long-Haul vs. Short-Haul

For a number of years application of technical advances, such as carrier systems, coaxial cable, and microwave, have been more pronounced for long-haul traffic than for short-haul business. Also, the inflationary trend in costs during and following World War II had a greater impact on terminal costs than on line haul costs, particularly since a large portion of the terminal costs are related to wages.

The combination of these factors has had an extremely adverse effect on state operations where most of the toll traffic is short-haul.

It is generally recognized that, in spite of the fact that state rates average about 35 per cent above interstate rates, *the earnings for intrastate toll operations, in most cases, is seriously below the return on investment for interstate operations.*

This presents the practical problem to the state regulatory commissions of the possibility that the pressure of public opinion against increasing the differential would eventually result in the exchange rates carrying part of the toll rate requirements.

There has been quite an evolution in the history of toll rate making and in determining costs related to message toll service. Toll service makes use of all of the facilities used for exchange service, i.e., the originating and terminating facilities, and, in addition, requires the use of toll operating and intercity facilities.

Originally, it was the theory in the industry that the cost of toll service should exclude consideration for the use of any exchange facilities from the switchboard to, and including, the customer's telephone instrument, leaving only the switchboard and inter-exchange toll circuit facilities and the timing and ticketing of the calls to be assigned to toll service. This was the so-called board-to-board theory.

This theory was later replaced by the station-to-station theory incorporated into Exhibit 2, FCC Docket No. 6328, which recognized the use of all telephone facilities for toll service from the subscriber's telephone, where the call was originated, to and including the telephone at the receiving end of the call.

In 1947, a Special Cooperative Committee on Telephone Regulatory Problems of the NARUC and the FCC made numerous revisions in Exhibit 2 and reproduced it as the generally accepted Separations Manual.

In the meantime, however, the earnings on interstate toll operations continued to increase while the earnings on state telephone operations steadily declined. In an effort to stem the ever-widening disparity in toll rates, agreement was reached between the NARUC and the FCC on a separations procedure that would transfer a considerable amount of state toll operating costs and investment to interstate. This was covered by the 1947 Separations Manual and the 1952 Addendum, which is commonly referred to as the Charleston Plan.

As the cost per toll circuit mile for the long-haul business continued to decline, the Charleston Plan was not sufficient to stem the disparity. In 1956, the NARUC and the FCC again reached agreement on the so-called Modified Phoenix Plan, which provided for the averaging of high cost intrastate toll circuit mile usage with the low cost interstate toll circuit mile usage. This procedure, covered by the 1956 Addendum to the manual, transferred additional substantial amounts of costs and investment from state to interstate operations.

Directed To Bell Operations

At this point, I would like to mention that the study procedures of the NARUC-FCC Separations Manual, and practically all other considerations and attempts by the state regulatory commissions and the FCC to resolve the disparity in toll rates, have been directed to Bell System operations. Message toll service is rendered nationwide by the associated companies of the Bell System and the Long Lines Department of the American Telephone & Telegraph Co., as well as by some 4,500 Independent telephone companies. The Independent companies' share in the nationwide toll business is considerably smaller in volume than that of the Bell System, but the Independents serve two-thirds of the geographical area of the United States and originate and terminate toll calls in more communities than do the Bell companies. Any further consideration of the toll disparity problem must necessarily include all segments of the telephone industry.

Revenue Division Vital

The division of message toll revenues is, therefore, a vital element in the toll rate disparity problem. At present, there are division-of-revenue agreements between the AT&T and the Bell associated companies for interstate toll revenues, which provide, in

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TROUBLE CLEARING

The Night Alarm Circuit

By L. N. MARTIN

THE NIGHT alarm circuit is found in all manual switchboards—common battery or magneto, local or toll, DSA, PBX, attendants position or cabinet associated with a PABX, Information and Test Desks, etc. In fact, wherever there is a human operator there is a night alarm circuit. It adds an audible signal to the visual signal (lamp or drop).

The use made of this audible signal depends on the type of office and the amount of traffic. In even the largest manual office the traffic may be very light for six or seven hours of the night and only one or two operators are at the board with possibly one or two reserves sleeping in the rest room.

In the earlier types of boards, there was but one appearance of the line lamp and, with only one or two operators covering perhaps 30 positions, it was easy to overlook a call coming in far down the board.

Hence, at a certain hour each evening the night alarm was turned on. The ringing bell told the operator that a call was coming in somewhere on the board and she looked for the light. The bell stopped ringing when all calls had been answered.

Later boards have two or three appearances of each line signal and an incoming call is more readily seen; however, the night alarm is still used during certain hours of the night.

When used as outlined in the foregoing, the night alarm is not of vital importance. Its failure does not mean that all or some of the subscribers have no service, but it may cause some slow answers. However, when the operator discovers that the night alarm is out of order she will watch the board more closely until it has been repaired.

At a PBX board, with light traffic, the night alarm may be turned on all day. The operator has other duties and may at times be working with her back to the board. In a small hotel the desk clerk may also serve as PBX operator. He may be talking to a guest at the counter when a call comes in. Most PBX boards in business offices are "plugged through" at night. In this case the *night* alarm may be misnamed as it is used only in the daytime.

PART 57. The preceding article in this series appeared on page 26 of the May 18 issue.

In a small central office, and especially one in a rural community, the traffic may be so light during certain hours of the night that having an operator awake and at the board all night is not justified. She is permitted to sleep during certain hours. Her bed may be in the operating room or in the adjacent rest room.

In an office of this kind, the importance of the night alarm is greatly increased. It becomes one of the most vital items of equipment in the office.

We will discuss the magneto office first because practically all of these offices fall into the class where the operator sleeps at night. In many cases, the board is located in a residence and is operated by a family. The night alarm bell may be located in one of the bedrooms at some distance from the board.

Some of these small companies offer *emergency service only* after a certain hour in the evening. We do not believe this is a good rule as it makes the telephone company—or actually the operator—the judge of what constitutes an emergency.

However, if it is enforced, it makes *every night call an emergency call* and if one of these calls is lost through failure of the night alarm it may cost the company dearly.

Another reason for discussing the magneto first is that the night alarm on a magneto board is subject to more trouble and is more difficult to maintain than that in any other type of office. We have never visited a magneto office that did not have more or less night alarm trouble.

The night alarm in a magneto board is nothing more than a door bell circuit with a contact in each drop taking the place of the push button. There is also a key to open the circuit when the night alarm is not desired. The bell is often an ordinary door bell with four or five ohms resistance that could once be bought at any hardware store for about 30 cents.

Most of the trouble experienced is in the night alarm contact in the drop. This contact is as fully important as any in the board and yet is often constructed in a way that would not be tolerated in a relay or a key.

In one older board—many of which are still in service—this contact consists of a small brass spring which presses (very lightly) against a brass wire.

Boards of a later vintage have greatly improved night alarm contacts. The two springs which come together when the shutter falls have the usual disk and point made of special contact metal such as is used in keys and relays. However, we have never seen the "crossed knife edge" principle used in a night alarm contact.

Even with the best of contact materials this is a weak point in the circuit because of the lack of contact pressure. It is a well-known fact that the resistance of a contact varies inversely with the pressure.

In this case, the only source of pressure is the weight of the shutter which is only a few grains. If the shutter falls freely, its momentum adds to its weight at the instant of contact and aids in establishing the contact.

This problem is similar to that of the gravity type relay which was once very generally used in common battery boards and other equipment. It was never satisfactory and has now been almost completely replaced with the spring type.

A spring-operated magneto signal could be designed. In fact we once saw such a signal which was made in Sweden. It had a spring-operated target and there was no trouble whatever with the night alarm contact.

However, it is now too late in the day to be redesigning magneto boards. We must do the best we can with the boards now in service. What can the owner of a magneto exchange do at a reasonable cost to improve this condition?

The first step is to thoroughly recondition all of the drops. This may be a long tedious job, but once it is properly done it should not be necessary to repeat this operation during the next several years. It would be impracticable to do this work while the drops are in the board or to remove the drops one at a time. The combined drops and jacks are usually installed on a mounting plate, five to a mounting (in some boards 10 per mounting) and it is much easier to remove and replace

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a mounting than it is to remove and replace the individual drops and jacks.

We, therefore, suggest that you obtain one new mounting complete with five drops and jacks. Also a supply of small replacement parts. Arrange a work bench with a jig for holding the mounting level in its normal position and a circuit to simulate the night alarm circuit.

There should also be one or two dry cells for tripping the drop electrically. You will then be able to test the drop under its normal working condition. The mounting strips are then removed from the board one at a time and replaced with a reconditioned strip.

The shutter should fall freely and rapidly to the lower limit of its travel when the drop is tripped electrically. See that it is free of any binding or stickiness.

The detail construction of a drop varies widely in the different makes of boards so we can give only general suggestions here.

The shutter is usually made of brass and is hinged on a brass pin. This pin must be clean and smooth. Replace any that are rough, nicked or bent.

See that the hinge of the shutter fits loosely (but not too loosely) around the pin, replacing any shutter that cannot be adjusted to fit properly around the pin. Oil should not be used on the hinge as it will collect dust and form a sticky mixture.

Clean and burnish the contacts, replacing any springs that have pitted contacts. Adjust the springs so that the normal fall of the shutter will make the contact, and the contacts will open promptly when the shutter is restored.

After you have thus cleaned and adjusted the drop mechanism to the best of your ability, it still may not ring the bell at times, especially after it has been replaced in the board and given a few days to accumulate a coating of dust or become tarnished. This leads us to the second step.

If we measure the resistance of a contact that appears to make, but does not ring the bell, we will probably find that it actually does make contact but the contact has a high resistance—possibly 50 or even 100 ohms.

Now, suppose we have a 5-ohm bell and a 3-volt battery (a common arrangement). With a good contact the current flow will be .6 amp. and we will get a good ring.

Now, suppose the contact measures 45 ohms making a total circuit resistance of 50 ohms. The current flow is now .06 amp.—*only one-tenth of what it was with the good contact*—and the bell may not ring at all.

Now, we could increase the current flow by increasing the voltage of the battery, but then there would be too much current when a good contact was encountered. This might damage the bell and might cause arcing at the contacts.

Suppose we increase the resistance of the bell to 50 ohms by winding 10 times as much wire on its coil. This also multiplies the number of turns by 10 and makes the bell 10 times as sensitive to the same amount of current.

With a good contact the current is now .06 amps, but since the bell is 10 times as sensitive this has the same power as .6 amps and we get a good ring. Now, suppose we encounter a contact with 50 ohms resistance. The current is now .03 amps, which is *one-half* as much as we obtained with a good contact. This is much better than the *one-tenth* that we obtained with the 5-ohm bell.

We can now make a further improvement. We can safely increase the voltage of the battery. This secures a higher current flow under all conditions and the higher voltage tends to "break through" a stubborn contact.

The writer encountered his first night alarm trouble in his first board—a two-position magneto board of ancient vintage. The night alarm contacts were very poorly designed and constructed. We knew that the trouble was due to high resistance contacts and, while we knew little about the mathematics of electricity in those days, we had learned a lesson from the experience of the much older telegraph business.

Telegraph companies had found that the line relay or line sounder must have a resistance that is somewhat comparable to the resistance of the line with which it is to work. Thus, for a short ("pony") line to a branch office in the same city, a 20-ohm relay or sounder would be used. Main line relays were at least 150 ohms with 300 ohms or more used on the longest lines.

When we tried to apply this principle to our night alarm circuit we found that a "high wound" vibrating bell was not available at that time so we secured a 150-ohm telegraph relay (an excellent type of relay). We placed this in the circuit instead of the bell. We also increased the battery to about 50 volts. The old bell was then placed in a local circuit in series with the contacts of the telegraph relay and two dry cells. *This solved our night alarm problem.*

At the present time, well-made high resistance vibrating bells are available. If you are having night alarm trouble on a magneto board we suggest you order from any telephone supply company a vibrating bell designed for use in a 48-volt office. Such bells are used for alarms and other signals in all 48-volt manual and dial offices and have adjustable contacts of good contact metal and adjustable coiled springs. Its resistance will be more than 100 ohms, perhaps 200 ohms or more. Install this in place of your old bell and step the battery up to 45 or 50 volts. Since the current requirement is low and its use is intermittant a 45-volt radio "B" battery is very satisfactory and it does not take up much space.

If you have reconditioned your drops as suggested earlier in this article, we believe that your night alarm problems will be solved, or as nearly solved as is possible with some of the older boards.

A magneto board is subject to another kind of night alarm trouble that can be very aggravating. As the night alarm springs are necessarily very thin and weak they sometimes remain in the closed position after operating, causing the bell to ring continuously. The operator must shut it off and then stay up until she can get someone to clear the trouble. The plant man knows the circuit is shorted in some one drop, *but which drop?*

Our first magneto board, which we mentioned earlier in this article, had 150 drops on one position and no means of segregating this kind of trouble. It was a matter of examining each drop, one at a time, until we found the one which was in trouble and it seemed that no matter where we started the faulty drop was sure to be one of the last inspected.

Sometimes, a short occurred in two drops at the same time. *Then we really did have a problem.*

More modern boards have an arrangement by means of which this trouble may be quickly located in a strip of five (or 10) drops.

One such arrangement consists of a row of Fahnestock clips, one for each strip of drops. The wires can be removed quickly from these clips, one at a time, until the bell stops ringing.

If a board does not have this arrangement, it will pay to install it. This may require a day's work but the time will soon be paid for in time saved in searching for this kind of trouble in the future.

In a common battery board the night alarm circuit is quite different and usually does not cause much trouble. However, it has many features that a telephone man should understand. We will discuss this in a future article.

The 2-5 Numbering Plan and Selection of Exchange Names

By A. LOGAN STEELE*

WHAT'S YOUR telephone number? It's a question asked almost as often as "What's your name?" We in the telephone industry should be glad of the frequency of this question, since:

(1) Calling by number speeds telephone service to customers.

(2) Calling by number builds good habits for the future, when more and more customers will be dialing their own long distance calls.

(3) Calling by number enables our operators to spend a greater proportion of their time completing calls between customers.

But the answers to the question are beginning already to sound more and more alike (as far as the name portion of the number is concerned, at least), regardless of where in our country or Canada the question is asked. Why?

Why are the good old familiar names of telephone exchanges being converted into neutral names which are cropping up all over everywhere? Why are so many numbers getting into the same pattern—two letters, five digits?

Well, we'll try to find the answers to these and other questions. We shall also take a look at how this new variety of telephone number is being assigned in our own Hoosier state. And finally, we'll do a once-over-lightly on what the switching equipment does with such a number when it is fed in by a dial or keyset.

Let's go back a bit. Years ago, when there weren't so many telephone subscribers, it was pretty easy for the operator to remember that the blacksmith was 80-J, or that 50 was the drygoods store. In smaller communities, even today, there's still some tendency on the part of customers to call by name. But, not so much. It's worthwhile to note, however, that the directory first used had only names.

More and more use of numbers instead of names became necessary with the growth of local telephone systems. Numbers crept into the directories; the directories changed from cards to booklets, then into books. All this time, however, only digits were used. But that time came when one switchboard wasn't enough to serve a whole community. A second central office had to be used—maybe it was called "Branch" and the original one, "Main."

The digits in the numbers, of course, went up to four. Directories were also popular as central office names—"East," "West," "North," and "South." They weren't very striking names, but they did the job. From where we sit now, it might have been simpler to *number* the additional offices beyond the first instead of *naming* them — we'd have had our five digits that way, and the immediate need would have been served.

In October, 1897, a national telephone directory was issued, listing all Bell System telephones by location, number, name and indication of whether business or residence, for long distance service. That would be a big book now!

To get on with our story—pretty soon the compass points were exhausted, as our ancestors began to explore the limitless possibilities of geography. Names like Bowling Green, Fairfax, Longbeach, etc., started popping up. Then there was a fertile field in natural history: Cherry, Hickory, Orchard, Walnut, Pine, etc. National heroes lent a hand: Washington, Adams, Franklin, Hancock, Lafayette, and others. Locally significant names were especially colorful: Tashmoo, Glebe, Esplanade, McAdoo were examples which were particularly effective in confusing distant operators because of their sound and distinctive spelling.

At about this time, with things getting into a bit of a mess, attention was directed to the phonetic value of central office names. Names from all possible sources were tested by having one operator read them over the wire to another operator. The second girl recorded what she thought she heard—the results were quite revealing. Those names which were frequently misunderstood, misspelled or requiring a number of repetitions were scratched.

One factor which restricted the usefulness of this method somewhat was that tests were made in local areas; the fact that both operators were familiar with some of the local names was taken care of in later arrangements at a greater distance which knocked off even more of these.

Other complications were introduced by the advent of dialing. The dial, as we know, has no Q on it—late models also lack the letter Z. Hence, there can't be any names like Quincy or Zenith, at least these letters can't very well be dialed.

Through the nature of automatic equipment, too, the two letters used at this early stage to designate the central office name had to be different from those of any name insofar as what they represented was concerned.

For example, there couldn't be Main and Market in the same exchange because MA stands for both; Adams and Beacon fall into the same category, if we'll look and notice that both are 2-3 dial pull names. Sometimes it was pretty difficult to wash out a name which had been used for a good many years. We all know how this is. But these difficulties were very practical and very real.

Now with 8 first letter pulls (leav-

Mr. Steele is a member of the Connecting Company Relations Department of Indiana Bell Telephone Co. He presented this address before the Traffic Conference at the recent convention of the Indiana Telephone Association.

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ing out 1, which has no letters, and zero) and 8 second letter pulls, there were 64 possible combinations of two letters each. On the older type of telephone, known as the desk-stand, it was very easy to give a preliminary impulse to the equipment if the receiver should momentarily stick on the hook; machinery in the central office was arranged to absorb this preliminary impulse—this is really the reason why there aren't any letters associated with the 1. Four of the 64 possible combinations weren't used because of the very few names they would yield. They are:

5-5 JKL-JKL	5-7 JKL-PRS
LLama	KRingle
9-5 WXY-JKL	9-7 WXY-PRS
YLang	WRath

This leaves 60 net possibilities.

The fight for more and more names which would still be used for the growing number of central offices went on. As a means of securing more, a third letter was introduced in some cities. This gave a theoretical possibility of 8x8x8, or 512 names, of which about 325 combinations proved reasonably feasible, but this seemed adequate to handle the situation, then. These were tested as before and all seemed well for a time. It was even possible, with this loosening of the situation, to use some of the familiar local names again, which was popular.

Again, the respite was short. Growth went on, threatening the peace of mind of the people who made up the names, and to this was added the impact of a new complication, intercity dialing. As long as an operator was told an exchange name she already knew, there wasn't much chance for error, but when the CLR operator was told by the customer that the number he wanted was "Taylor 1234," she might spell it TAI on the dial; or, if he said "Riley" to an operator in New York, she'd dial "REI," which isn't the same thing on the dial at all.

This difficulty with the orthographic (that's a big word for spelling) placement of the third letter, together with a need for more and more central office names resulted in the change from three letters, four digits to two letters, five digits (2L-5D), the present "2-5" numbering plan, designed for nationwide dialing use.

The 2L-5D combination eased the spelling troubles and produced more possibilities for central office names, about 540 in all. We get this by taking the 60 possible with two letters and multiplying by 9, since zero is not used in this combination, being the "Operator" code.

About now the possibility of intercity dialing by customers themselves

A. L. STEELE

required serious consideration and it was plain to see that the central office naming scheme required further review. For the natives in a city and all telephone operators to dial a particular number is one thing—for 50-odd million customers in the United States and Canada to do so is quite another matter. And, it was the goal to make this possible easily and simply.

This meant the creation of a multi-office "exchange" composed of the entire United States and Canada, in effect. The first step was to divide the whole territory into areas, designating each with a three-digit area code which would be different from that of any other. These are geographical areas, following state and province lines, but because of thickly-populated regions more than one area code had to be used. We require three in Indiana, for example. Remember, no more than 540 central office names can be used within a single Number Plan Area (NPA), and the object is to get the calls to (a) the NPA and (b) the called telephone.

Codes have either zero or 1 for their middle digit. This is termed the X0X and X1X approach, and was set up on the basis that a zero would be used in the middle when the entire geographical area could be served by one NPA code; where a 1 is in the middle, more than one code would be required per state. This gave 152 possible NPA codes (8x10, or 80 for the first and last digits, since neither 1 nor zero is available for the first digit, in X0X; only 72 for the X1X, since 11 cannot be used on account of local service codes such as 211 for long distance, 411 for "Information," etc.)

With only 48 states and nine Canadian provinces, this would seem like far more than enough NPA codes for the need. But already over 100 have been assigned. Already there are places like Florida and Georgia which have both X0X and X1X codes in the same state. What about future needs, you ask? Well, the planners have thought that one through, at least until the year 2000 or thereabouts. The addition of only one digit to the NPA code will give 72 more, by making the pattern X01X for the added areas.

To get back to the naming of central offices within each NPA and the necessity for each office in the area to have a different designation, it was clear to be seen that some names had to be changed. Where there were two cities in the same numbering plan area having an office with the same name, this took some doing in the way of judgment and diplomatic negotiations.

In the interests of simplicity, it was apparent that uniformity of such numbering had to be the objective; each number had to consist of two letters and five digits. *Which* two letters was the next question. In the smaller places having only one central office, why not keep the locality name as the first part of the 2-5 number? The trouble was that there were a lot of ingenious but puzzling names for our towns and villages: Koeponick, Ephrata, Illahee, Scruggs, Hye, Quiggleville (no Q, remember? and Zia (no Z either) are examples. They're all good names, but they won't do.

With considerable care and effort, a list of several (usually four to six) names for each of the 60 possible letter combinations has been developed—all of these seem to meet the necessary requirements. They can be spelled and, what is more important, they can be dialed. A few of them are the following, to illustrate the point:

2-2 Academy	5-6 Locust
2-3 Adams	6-6 Mohawk
2-4 Chestnut	6-8 Murdock
2-5 Alpine	7-4 Pilgrim
3-6 Emerson	7-7 Prescott
3-7 Drake	8-2 Talbot
3-8 Dudley	8-6 Townsend
4-2 Garfield	9-3 Webster
4-3 Hemlock	9-8 Yukon
5-3 Jefferson	

As the same names can be used in all NPA's, telephone numbers in the different parts of the country are beginning to sound more and more alike. Sentimentally, this is not too good, perhaps, but telephonically it is ideal.

Over several years now, considerable progress has been made toward the goal of full 2-5 numbering necessary for full nationwide customer dialing. Today about 35 million telephones, or nearly 70 per cent, are on a 2-5 basis.

(Please turn to page 48)

The importance of 1/12th dozen

by John Voss

At a state meeting, not long ago, I ran into a man who's president, general manager, commercial manager, service manager and head bookkeeper of a 150-station exchange out in the prairie country.

We had a real pleasant chat, mostly because our talk cleared up a misunderstanding he'd had about Stromberg-Carlson.

"We read a lot," he said, "about your being part of General Dynamics Corporation, and moving into a huge new building and generally growing like a mushroom. We smaller companies are inclined to get the idea that we're only a nuisance when we send in an order for, say, one replacement housing for a 1250 telephone a subscriber of ours drops and breaks."

Straightening out my friend in this opinion gave me a chance to quote the policy that is practically a motto around here — no matter what we make, *Service* is the finest thing we have to sell.

Independent operating companies, big or small, are our best customers. And when there's trouble, or a shortage or an accident, a one-twelfth-of-a-dozen telephone housing is as important to the "little" company that needs it as a 1000-line addition is to a metropolitan XY exchange. If my friend dropped a note to his nearest branch, or the factory, he'd get his part as fast as the mailman or expressman could carry it.

Another thing: trouble or no trouble, routine or emergency, correspondence that comes into our factory or branches gets answered *right away*. Nothing makes me madder than writing somebody and then waiting and waiting for an answer. Even if a man's going to say "No" to you, by gosh I think he owes it to you to say it promptly.

Our representatives in the field are accustomed to the same sort of thing. Did you know that the man who calls in your territory sends in his call reports *daily*? Or that Tommy Thompson or Bill Rockwood or Colby Knapp or I *read* these reports daily? And believe me, if there's trouble or a complaint or a request for help in any of them, somebody gets on that matter right then and there—even when it's from a "little" company!

Since the end of World War II, our business has grown over seven times. It's nice to be "veep" and general manager of a successful operation like that. But I believe that, no matter how we grow, or how happy we are with orders in five and six figures, we'll never be too big to welcome—and fill—an order for one-twelfth dozen of anything.

John H Voss

Vice President and General Manager
Telecommunication Division

STROMBERG-CARLSON, A Division of General Dynamics Corp., Rochester 3, N. Y.

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

WE HAVE an interesting letter from Mrs. Alveeta Cave who is employed by the Christian County Telephone Co. at Ozark, Mo. Mrs. Cave tells us that years ago when she took her operator's training with the Mountain States Telephone & Telegraph Co., in El Paso, Tex., she was more interested in "what makes it work" than she was in operating. She also thinks that we should have trained women as equipment installers, etc.

In Germany they have done just that. When we were overseas last year, we noticed that women in large numbers were working on central office trouble and equipment installation. Inquiry indicated that they were, in general, more thorough and produced neater work than the average man. Perhaps we have made a mistake by not training the fair sex of this country in this type of work.

Mrs. Cave states further: "I didn't know before I came to Ozark that a small one-inch paint brush was a very necessary piece of equipment for a telephone operator on a stormy night. This brush is used to restore the drop shutters when lightning knocks them down."

•

Our latest Junior Achievement report comes to us from Indiana where, working with other leading businesses in the South Bend-Mishawaka area, Indiana Bell Telephone Co. has been the sponsor of one of some 24 miniature business organizations.

These junior and senior high school students utilize capital they themselves have raised through the public sales of stock at 50 cents a share.

Not only do these youngsters manufacture and sell a product, but they also conduct their business on a sound financial basis. So sound, in fact, must be their operation that they are expected to return a dividend to their stockholders at the end of the year's operation.

According to the *Indiana Telephone News*, the Junior Achievement movement was founded at Springfield, Mass., in 1919. It is composed of high school students who have joined the organization to learn the basic "free private enterprise" philosophy that is the cornerstone of American business.

One of the three founders was the late Theodore N. Vail, former president of the AT&T company.

The working creed of this organization is as follows: "Working together in Junior Achievement we develop our knowledge to make the best of our opportunities to strengthen our American way of life."

•

An interesting new development is an electric soldering iron equipped with its own 12-volt transformer which plugs into any 110-volt outlet. The input is 17 to 20 watts.

It is claimed that quick, ample heat is obtained at the tip of this ultra-slim, pencil-type low-voltage iron to perform dependable, precision soldering on miniature or delicate electrical components.

The handle of high-impact thermosetting material is cool and comfortable to handle at all times.

The one piece tip-elements—$\frac{1}{16}$, $\frac{1}{8}$ and $\frac{1}{4}$ inch tip diameters—are interchangeable and made of stainless steel and Armco ingot iron. These tips are permanently tinned.

•

Out in California, a 34-inch natural gas pipeline crosses three rivers on a suspension type bridge. These spans are 400 feet, 650 feet and 900 feet in length. After the job was completed, it was found that these bridges would get the shakes, achieving a rhythm of 19 shakes a minute and swaying as much as five or six feet.

After extensive study, it was learned that at a certain range of low wind velocity, a shallow ribbon of air was causing alternating upward and downward pressures, accompanying the natural vibration frequency of the pipeline and giving it the shakes.

Corrective action was taken by installing special air foils, 30 feet long and 45 inches wide, at intervals along the pipeline span. This breaks up the rhythm and stopped the trouble causing jitters.

There is no doubt that this pipeline trouble is quite similar to dancing cable as reported by several of our readers. There appears to be a possibility that air foils installed in the span might correct the dancing cable problem.

•

Recently we personally heard of a complaint made by a telephone subscriber up near Newark, N. J., who has telephone number ORange 4-3311. He complained that for some time he had been receiving numerous DDD (Direct Distance Dialing) calls intended for ORchard 4-3311 which is located in the Baltimore, Md., area.

The area code for Baltimore is 202 and the Newark area code is 201.

It would appear that this trouble is due to DDD customers who are trying to call the ORchard number dialing 201—OR 4-3311, instead of 202—OR 4-3311. When they dial 201 for the area code they reach Newark whereas if they had dialed 202 they would reach the Baltimore area. The one extra pulse caused the trouble.

This only goes to show you what a whale of a difference one pulse can make. If you are careless when you call your aunt in Chicago and slip one finger hole on the dial you will probably reach a brewery in Milwaukee or ring the Fire Department in San Francisco.

Dialing should always be carefully performed, and more especially so when you are making DDD calls.

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Over 700 Delegates Attend California Convention

*By George A. Bridges**

AN UNSEASONAL Los Angeles heat wave greeted over 700 members of the California Independent Telephone Association who attended the 38th annual convention, held June 5 through June 7 at the Ambassador Hotel.

Fred H. MacGougan, president of the association, presented a résumé of CITA events during his 1956-57 term of office.

He mentioned that at the end of 1956 there were 53 Independent companies, serving 176 exchange areas and in excess of 1,050,000 telephones in California. Ten years ago there were 79 companies, serving 164 exchange areas and approximately 305,000 telephones. Although the number of companies has decreased by 33 per cent, the number of stations served has increased by 245 per cent. Plant investment during the same period has increased from approximately $46,700,000 to $356,600,000. The gross revenues of all California Independent companies have increased from $17,900,000 for the year 1947 to $93,300,000 for the year 1956, or by 421 per cent. Mr. MacGougan continued:

"During the year, the association has admitted the William Butts Telephone Co., the Nornitos Telephone Exchange, the Petrolia Telephone Co., and the Snelling Telephone Exchange to membership.

"During its meeting of June 7, 1956, the Board of Directors voted to admit three teenage students, namely, Preston Thomson, John Davis and Tom Voorhees, as members of the association without assessment. As you may recall, these three boys operate a telephone system in El Cerrito named Western Communications. They attended our 1956 convention in San Francisco and were also present at the Fresno meeting in February of this year."

Mr. MacGougan reported that during the past year three new committees had been appointed: The training program committee, consisting of Donald H. Strahl of the Gilroy Telephone Co., chairman, and Don Wrysinski of the California Interstate Telephone Co.

The convention program committee, consisting of Jack Maguire of the Kern Mutual and Central California Telephone Co., chairman; Richard D. Crowe of the Dos Palos Telephone Co., Inc.; and W. Gilman Snyder of the Western Telephone Co.

Also a toll settlements committee, consisting of Allan Stacey of the Sunland-Tujunga Telephone Co., chairman; Fred C. Rahdert of the General Telephone Co.; Lyndon Farwell of the Western California Telephone Co.; Alden Knapp of the Sanger Telephone Co., and Neal Hasbrook, secretary of the association.

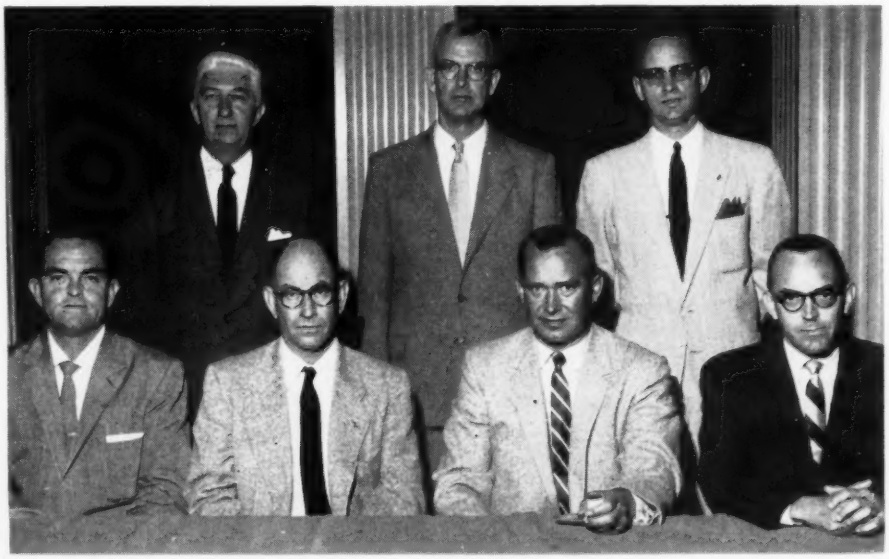
Mr. MacGougan went on:

"In addition to the committees appointed during the past year, the association has several active committees that were appointed earlier. The pole contact committee, appointed in March 1956, to negotiate an equitable scale of pole rental rates with the Pacific Gas & Electric Co., has successfully concluded its negotiations.

"The membership of this committee consists of Allan Stacey, chairman; Lyndon Farwell, Gilman Snyder, Knox Hagar, and the association secretary. In early 1956, several of our member companies received notification from the Pacific Gas & Electric Co. that the rates for contacts on its poles would be increased to $5.00 per year.

The pole contact committee, through negotiations with the power company, has developed a form of contract covering the rental of pole contacts that it believes will apply to all Independent companies not operating under a joint pole agreement. This contract established rates for pole contacts related to the number of stations served by the telephone utility.

"The rates are graduated from $1.50



The new board of directors for 1957-58 term of office: (front row, left to right): J. P. Maguire of Kern Mutual Telephone Co.; J. Curtis Newman of Coachella Valley Telephone Co. (newly elected president); Donald H. Strahl of Gilroy Telephone Co.; Neal C. Hasbrook, secretary-treasurer. Second row standing, left to right: Harlan W. Holmwood of General Telephone Co. of California; W. Gilman Snyder of Western Telephone Co.; and Allan R. Stacey of Sunland-Tujunga Telephone Co. (Peter A. Nenzel of California Water & Telephone Co., not shown in the picture).

*Mr. Bridges is press relations coordinator for General Telephone Co. of California.

NOW

Another New and Bigger Forward Control 'Jeep' Truck

Here's the bigger, more powerful, 7,000-pound GVW Forward Control 'Jeep' FC-170 Truck:

- **Advanced Forward Control design!** The same new, advanced features that made the Forward Control 'Jeep' FC-150, an immediate success.
- **More cargo space on less wheelbase!** A 9-foot flatbed pickup box on a wheelbase only 103½-inches long! Bed is 27-inches from ground for back-saving ease of loading!
- **More efficient space utilization!** Compare it with any other 4-wheel drive truck — *only* the FC-170 gives you so much cargo space per inch of wheelbase!
- **All-time high for "big-load" maneuverability!** The FC-170 is the *only* 4-wheel drive truck to give you "go-anywhere" 'Jeep' maneuverability with a payload capacity of up to 3500-pounds.
- **Other outstanding features!** It's really a 4-wheel drive truck — *not* a modified 2-wheel drive truck, *not* a conversion! High-torque Hurricane 6-226 engine, time-tested and performance-proved • spacious Safety-View Cab • big wrap-around windshield • wide 63-inch tread for ground-gripping stability in off-road travel • shifts easily into 2-wheel drive for highway travel • with power take-off, operates a wide range of special equipment from winches to belt-driven machinery.

The newest addition to the 4-Wheel-Drive 'Jeep' family...ready for the bigger, tougher jobs!

SPACIOUS SAFETY-VIEW CAB puts you in a "Forward Control" position, gives you greater command of any driving situation.

EXTRA 4-WHEEL-DRIVE 'JEEP' TRACTION takes heavy loads to off-road areas impossible for ordinary vehicles to reach.

'Jeep' 4-Wheel-Drive / Forward Control FC-170

WILLYS... world's largest manufacturers of 4-Wheel-Drive Vehicles

Willys Motors, Inc., Toledo 1, Ohio

LEFT PHOTO: Discussing commercial problems no doubt, are members of the commercial panel. Seated from left to right: Willard Hanley, R. W. Sproul, R. A. Dinsmore, chairman, Mrs. Hazel M. Downey and Mrs. Lucile Conover. RIGHT PHOTO: The Accounting Panel was chaired by Keith E. Vine (third from left), who was assisted by (from left to right) Harry L. Draper, Leland A. Dowden, John F. Donovan and Blair Hutson.

per year for companies serving less than 1000 stations to $3.50 per year for companies serving 2500 or more stations.

"I am advised by the chairman of the pole contact committee that the Pacific Gas & Electric Co. is preparing a draft of the contract which will be presented to the committee for review and revisions, if required. After the terms of the contract have been agreed to by the power company and our pole contact committee, it will be offered by the power company to each Independent telephone company renting pole contacts from it."

In his coverage of the California association's relationship with the USITA, Mr. MacGougan mentioned that the Federal Communications Commission recently issued an order requiring the Bell System to permit attachment of the Hush-a-Phone to its telephones. He said, "It is possible that this action could set a precedent on which manufacturers of other types of foreign attachments could rely in attempting to have their products authorized for usage in connection with telephone systems. The USITA and your association will closely watch developments in this field."

Second speaker for the afternoon, Foster B. McHenry, vice president of USITA, chose as his topic, "Our Place in the Sun." Mr. McHenry described our telephone systems as the heartline and life line of America today.

"There are 4400 Independent telephone companies in the United States," he said. "Independents have 9 million telephones and serve two-thirds of the geographical area of the United States. No business is more representative of American free enterprise than the thousands of Independent companies," Mr. McHenry continued. He traced the development of the telephone in 1876 and the Independent industry in 1892 to the present.

Mr. McHenry reviewed the plans for celebrating this, the 60th year of the United States Independent Telephone Association. "Today, one of our most pressing problems is financing in a 'tight money age'," he said.

The second day's session featured four panel discussion groups dealing with commercial, plant, accounting and traffic problems.

Discussing commercial operations, R. A. Dinsmore of the California Interstate Telephone Co., presided as chairman and was assisted by Mrs. Lucille Conover, California Water & Telephone Co.; Mrs. Hazel M. Downey, Sunland-Tujunga Telephone Co.; Willard Hanley, General Telephone Co. of California, and R. W. Sproul of The Pacific Telephone & Telegraph Co.

Mr. Sproul, of San Francisco, explained how toll tickets could be prepared and submitted for billing and how to interpret centralized automatic message accounting (CAMA) information for subscribers.

Mr. Hanley, general sales supervisor for General of California, spoke on procedures for increasing revenue through sales, or sales policy as it relates to meeting or creating demand; also on the meaning of merchandising. He said: "Increasing population, gross national product, and income, offer the telephone industry the greatest challenge it has ever faced—competition for consumers' discretionary spending power. The extent to which the telephone industry will get its share of the dollars spent by today's and tomorrow's consumers will depend upon the industry's ability to merchandise its services more effectively than other industries which are competing for the same consumers' dollars."

Mr. Hanley then introduced Darline S. Irwin, General company public relations representative, who pointed out that through the company's public information programs, which stress good telephone usage; the proper use of the electronic secretary; transistorized hearing aids; hands free 88A adapter units, and colored instruments, unexpected sales often resulted.

Acting as chairman of the plant panel, W. W. Stahl, California Pacific Utilities Co., was aided by H. O. Davis, Western California Telephone Co.; Harold C. Diddel, Pacific T&T; G. W. Harrison, General of California, and D. A. Strahl of the Gilroy Telephone Co.

Mr. Diddel, in discussing exchange transmission planning, said:

"Transmission is the product we have for sale. It is the basic foundation of our telephone business.

"Transmission is divided in two cate-

(Please turn to page 34)

LEFT PHOTO: Introducing the Plant Panel (left to right): Donald H. Strahl, Harold C. Diddel, William W. Stahl, chairman, Harold O. Davis and George W. Harrison. RIGHT PHOTO: The Traffic Panel stands poised for action. Reading from left to right: Owen G. Jarboe, chairman, Bessie Reece, A. S. Taylor and Joan Braun.

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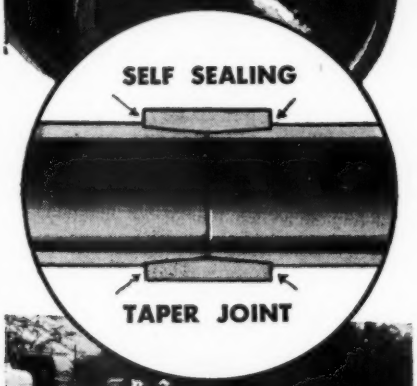
SMOOTH BORE!



Orangeburg Fibre Conduit Prolongs Cable Life

Protect cable sheath from abrasion and you prolong the life of underground cables, say utility engineers. Scoring of cable sheath creates "trouble spots" that shorten cable life.

That's where Orangeburg Fibre Conduit plays an important part in keeping cables healthy. Orangeburg's smooth bore, its low coefficient of friction minimize the danger of abrasion when cables are pulled in, as well as later on during cable movement. By protecting cable sheath from abrasion, Orangeburg Fibre Conduit adds years to cable life.

Orangeburg's impermeable wall and watertight joints protect cables from corrosive ground waters. Its nonmetallic material is strong, tough, resilient, long lasting.

And, remember, Orangeburg lays faster and at lower cost than other types of conduit. It is light in weight, easy to handle, easy to tool on the job. Spacers, bends, fittings, 5° bend sections and lightweight tapering tool, all combine to simplify installation.

Since 1893, records of long life have proved Orangeburg's durability and economy.

Orangeburg Fibre Conduit is distributed by Graybar Electric Company and General Electric Supply Company with branches and stocks in principal cities.

WRITE DEPT. T-77 FOR NEW CATALOG 52.

ORANGEBURG MANUFACTURING CO., INC., Orangeburg, N. Y. **West Coast Plant, Newark, Calif.**

ORANGEBURG®
FIBRE CONDUIT

to please the ladies . . .

Automatic's famous Type 80 Telephone in new Camellia Pink

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..3 new colors!

CAMELLIA PINK . . FORGET-ME-NOT BLUE . . GARDENIA WHITE

Automatic's Type 80 Telephones have a fresh new appeal for women: three soft, delicate, petal hues—each a feminine favorite. Your customers will be delighted with these Type 80's in Forget-Me-Not Blue, Camellia Pink, and Gardenia White. More important, these colors will sell 'extra' telephones, for bedrooms, for kitchens, for any room in the house!

Here's your opportunity to stimulate *second* telephone sales, and build good will as well. To assure an ample supply of these new colors from our initial production, address: *Automatic Electric Sales Corporation, Northlake, Illinois. Or call Fillmore 5-7111.*

FREE SALES AID!

To help you promote the Type 80 in colors for women, we've prepared a small envelope stuffer. It shows all the new colors, and lists the regular colors available. You'll want a supply for bill inserts, mailings, counter distribution, etc. Write and let us know how many you'll need.

AUTOMATIC ELECTRIC

A member of the General Telephone System—
One of America's great communications systems

GENERAL TELEPHONE SYSTEM

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Edwin M. Blakeslee (left), president of General Telephone Co. of California, chats with Fred H. MacGougan, retiring president of the California association, during a break in the action-packed convention schedule.

gories: signalling, to establish a call, then providing good speech channels after calls are established. Customers judge the excellence of our product by their ease of communication. The channels should provide satisfactory sound volume, and tone range to the extent that need for repetition is small.

"Thirty some years ago it was not uncommon to have an intermediate operator repeat customer conversations on a small percentage of inter-exchange connections. This was a result of poor transmission, both in exchange and toll plant.

"We have progressed tremendously since then, in both intra and inter-exchange connections but we need to progress further."

An interesting talk on safety practices was presented by George Harrison, safety supervisor for General of California, who stated: "Occupational injuries or deaths from occupational injuries total 2 million since the end of World War II. Accidents involve expense, including loss of production, damage to products, etc."

Safety and accident prevention, according to Harrison, are more important than most company functions. He continued:

"Management is responsible for and should apply energy toward accident prevention. The authority rests with management and the safety program must be flexible enough to include safe and correct working practices.

"Death, or lifetime disabilities, mean the loss of a productive employe to the company as well as the loss of a 'breadwinner' for his family.

"The company, it must be remembered, is always responsible for accidents or death as far as the public is concerned. In the telephone company, there are three classes of responsibility:

"(1) Supervision (the supervisor must not furnish improper tools or give poor advice).

"(2) The individual (he must not fail to observe safety rules and should not take short cuts).

"(3) Plant conditions (which must not include poorly functioning tools or human failures occurring outside the company)."

The "Backward Look," presented by Mr. Davis, discussed how his company cut down on high plant maintenance costs.

At the accounting panel, introduction of panel members was conducted by Keith E. Vine, chairman of the California Water & Telephone Co., assisted by Leland A. Dowden, San Joaquin Telephone Co.; John F. Donovan, California Public Utilities Commission, and Blair Hutson, state board of equalization.

"Our Place in the Sun," was the title of a speech by Foster B. McHenry, vice president of the United States Independent Telephone Association, presented during the convention.

For the traffic panel, Owen G. Jarboe of the General company was chairman. Assisting him were Mrs. Joan Braun of San Joaquin Telephone Co.; Louise Kirby of Sunland-Tujunga Telephone Co.; Bessie Reece, Coachella Valley Telephone Co., and A. S. Taylor of California Interstate Telephone Co.

Three resolutions were adopted by the convention. Two expressed appreciation for services rendered the association; one for Mr. MacGougan, who retired as a member of the board as well as from the presidency, and the other for Richard D. Crowe, a past president who also retired from the board.

The third resolution expressed appreciation for the diligence with which the late Chester F. (Ping) Fairly served the telephone industry of California.

Main speakers at the final session included Matthew J. Dooley, commissioner of the California Public Utilities Commission, and James S. Cantlen, vice president of Pacific T&T.

Mr. Dooley chose as his topic, "An Introspective View of the California Public Utilities Commission," and he said:

"I was singularly impressed with the business-like organization of the California Public Utilities Commission, after I had the opportunity of observing its operation, as it were, from within its confines.

"The basic organization of this commission, as you all know, consists of five commissioners who are constitutional officers appointed by the governor, and whose full terms are for six years.

"Functioning under the commissioners is a staff, consisting generally of the utilities division, the transportation division, the utilities finance and accounts division, the division of examiners, the legal division, and the administrative division.

"The commission is functionalized to obtain the advantage of competence and skill and efficiencies that result from specialization in the numerous subjects that come within its jurisdiction.

"The utilities division is responsible for the regulation of rates, service, safety, valuation and certification of electric, gas, telephone, telegraph, water and steam heating public utilities. . . . For all types of utilities, matters of law are handled by the commission's legal division, and matters of accounting and finance are the responsibility of the utilities finance and accounts division.

"Members of the division of examiners assist the commissioners in the conduct of hearings, evaluation of evidence and drafting of decisions. Administrative matters are the responsibility of the secretary, who is in charge of the administrative division.

"When one is first appointed to the commission, the magnitude of the task of the commission is somewhat baffling,

(Please turn to page 50)

"That's a good one," says Ernest W. Watson, general commercial manager, General Telephone Co. of California, to C. R. Baldwin, manager of the General company's Downey exchange, as they exchange quips during the three-day convention.

XUM

Open House—Small Investment With Big Dividends

BY PUTTING ITS PLANT and facilities on display recently in a public open house, the Sunland-Tujunga (Cal.) Telephone Co. accomplished three important objectives with one relatively inexpensive program:

(1) It pre-answered a host of questions which are inevitable among subscribers in a rapidly-expanding community. Invariably, the most prevalent question among subscribers in a community expanding as quickly as Sunland-Tujunga is, "When am I going to get my private line?" On a single afternoon and evening during its highly successful open house, the Sunland-Tujunga Co. has some 2,500 visitors from its own community. All these people were shown the new exchange facilities which were under construction and which would, in a few months, give them the telephones they wanted.

(2) Letting the public see the complex and foolproof-looking central exchanges and punched card accounting equipment used by the Sunland-Tujunga Telephone Co. cannot help but pay substantial future dividends in public confidence and acceptance.

(3) Company officials were able to make an effective public appeal in connection with a campaign on which they are working tirelessly—a repeal of the discriminatory excise tax on telephone use.

Expanding as rapidly as the Sunland-Tujunga Telephone Co. has—from 1,791 telephones to 10,000 stations in 10 years—there were all sorts of "excuses" which could have been used as a basis for the open house. However, the company—which serves a suburb within the city limits of Los Angeles—was careful to pick a focal point with community significance.

Obvious company-connected occasions, like the opening of an addition to the company's building, or anniversaries, were bypassed. Allan R. Stacey, vice president and manager of the company, chose an event with community appeal: installation of the area's 10,000th telephone.

Through a carefully-planned "coincidence," the party receiving the 10,000th telephone happened to be one offering excellent appeal both at a community and newspaper-copy level. The lucky party was the family of Melvin L. Leydecker, a former Army master sergeant and veteran of the Korean War. Planning from this angle gave the whole program a broader, community-wide base.

The date selected for the open house was May 17, 1957. This fell on a Friday, the most convenient day for the majority of subscribers (the open house ran from 2 p.m. to 9 p.m.) and operationally, the easiest day and time (mid-month) to absorb the affair into the company's office routine.

Invitations to all subscribers were enclosed with the bills sent out at the beginning of the month. The company also ran invitations in its regular ads in the community's weekly newspaper. Personal letters of invitation were sent by Mr. Stacey to prominent members of the community, including the heads of all service clubs.

Special arrangements were also made to have local and industry dignitaries included in the affair. Just prior to the open house itself, the company staged a luncheon.

Invitations were issued to utilities commission officials, suppliers, the company's own supervisory employes, prominent citizens of the community, the press and so on. This group, then, was the first to tour the plant during the open house.

As it happened, the Sunland-Tujunga Telephone Co. had a lot about its plant which was worth showing off to visi-

(Please turn to page 55)

Units of the telephone company's fleet were set up in the yard to display installation techniques.

Left: The display just inside the front entrance featured color telephones. Right: School and club groups, like this Brownie troop, were cordially welcomed. (Photos, Courtesy IBM.)

Courts and Commissions

N. Y. Commission Upholds Directory Binder Ban

The New York Public Service Commission on June 25 upheld the legality of tariff amendments filed by the Cazenovia Telephone Corp. and the Seneca-Gorham Telephone Corp., prohibiting the use of binders on telephone directories, except as furnished by the telephone company (TELEPHONY, Mar. 16, p. 40).

The two Independents were directed to file amendments containing the following provisions:

"Telephone directories distributed from time to time by the telephone company remain the property of the telephone company, shall not be mutilated, and shall be surrendered upon request or upon delivery of the subsequent issue.

"No binder, holder, insert, auxiliary cover or attachment of any kind not furnished by the telephone company shall be attached to or used with the directories owned by the telephone company, except that this prohibition shall not apply to a subscriber-provided binder, holder, insert or auxiliary cover which contains no advertising, and which is not so attached as to impede reference to essential service information or otherwise interfere with service."

Hamilton A. Cunningham, executive secretary of the New York State Telephone Association, has urged that each association member arrange to file a tariff revision to include the amendment above.

Two Oregon Companies Ordered to Effect EAS

The Oregon Public Utility Commissioner on July 3 ordered the establishment of extended area service (EAS) between the Hillsborough exchange of the West Coast Telephone Co. and the North Plains exchange of the Pacific Telephone & Telegraph Co.

Pacific T&T's North Plains exchange is north of and contiguous to the West Coast company's Hillsborough exchange.

Initial period toll rates of 10 cents now apply to calls placed between the two exchanges, the commissioner found. For the test period June 1955, 77 per cent of the North Plains subscribers originated toll messages to Hillsboro, a total of 2133 toll messages originated. The average toll revenue or charge per call was $0.117.

If EAS is established between the two exchanges, North Plains subscribers would have available 3271 additional telephones in their calling area without a toll charge. The plan also would provide for regrouping the exchange from rate group I to rate group III. This, the commissioner stated, would bring about changes in the basic flat rate for service ranging upwards from 30 cents to $4.50 per month as follows:

	Present	*EAS*
One-party business	$ 7.00	$10.00
Two-party business	5.75	7.75
Suburban business	4.50	5.25
PBX Trunks	10.50	15.00
Farmer-line business	1.70	2.30
One-party residence	4.60	5.50
Two-party residence	3.70	4.15
Four-party residence	3.05	3.35
Suburban residence	3.30	3.60
Farmer-line residence	1.15	1.60

The commissioner, in reporting other findings of the study, said:

"Removal of the toll charges now in effect would bring about a saving to North Plains subscribers of $3,431.40 annually, or an average of $7.38 per subscriber.

"The overall effect to North Plains subscribers, giving consideration to removal of the toll charges and the upward revision in flat rates due to regrouping, would bring about an annual savings to North Plains subscribers of $857.40 or an average reduction in charges per user of $1.84 per year.

"A study for the same period discloses that 84 per cent or 2752 Hillsboro subscribers placed no calls to North Plains, 265 placed one call, 95 placed two calls, 48 placed three calls, 22 placed four calls, and 62 placed from five to 10 calls during the test period.

"Hillsboro, at the present time, handles only the calls between North Plains exchange and the Hillsboro exchange.

"Giving consideration to the loss in revenues, the required additions to plant, and adjustments in operating expenses, inauguration of EAS would bring about a net reduction in revenues to West Coast company of $5,140 annually.

"West Coast company now has a program underway which provides for conversion of the Hillsboro exchange to dial operation scheduled for the latter part of 1957. Fifteen to 18 months would be required to provide the facilities for installation of EAS facilities on the part of West Coast company due to limited availability of manpower and materials.

"It was determined at the hearing that the majority of the North Plains users desired such a program to become effective."

The commissioner concluded: "The feature of two entirely different operating companies and entities would necessitate treatment on the basis of primary community of interest.

"Heretofore the bringing about of such a service gave greater consideration to the needs of the smaller exchange.

"It has been established that greater use is made of the facilities in the direction of the larger exchange from the smaller exchange and at no time has it been evident that in order to approve an EAS program an equal number of calls or equivalent revenues on the part of the larger exchange would be given consideration.

"It is further concluded that the benefits which will accrue to the users of the North Plains and Hillsboro exchanges overshadow the loss in revenues to West Coast and should therefore be approved."

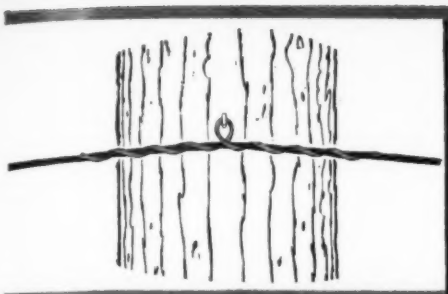
West Coast Company Gets OK On $3,000,000 Bond Issue

The Oregon Public Utility Commissioner on July 3 extended permission to the West Coast Telephone Co., Everett, Wash., to issue and sell 3 million dollars of first mortgage bonds, 4⅞ per cent series due 1985, to the following: Aetna Life Insurance Co., New York Life Insurance Co., Pacific Mutual Life Insurance Co., New England Mutual Life Insurance Co., Occidental Life Insurance Co. of California and Bankers Life Insurance Co. of Nebraska.

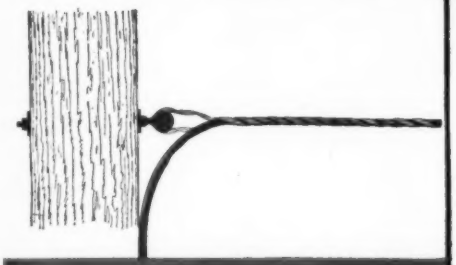
The proceeds will be used to reim-

(Please turn to page 41)

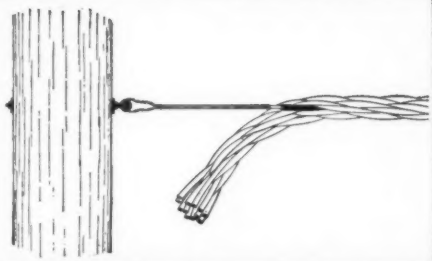
XUM



"C" Rural Tangent Supports

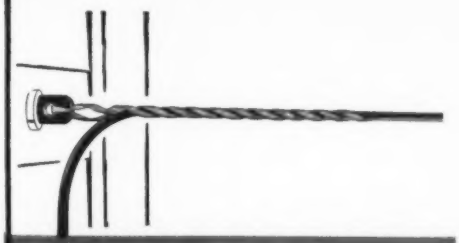


"C" Rural and Open-Wire Dead-Ends

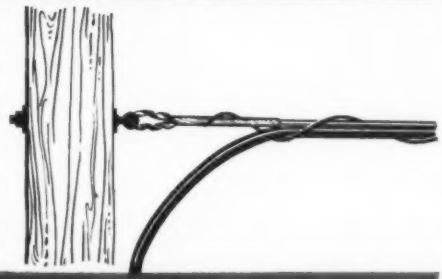


"B" Rural Dead-Ends

Guy-Grip Dead-Ends

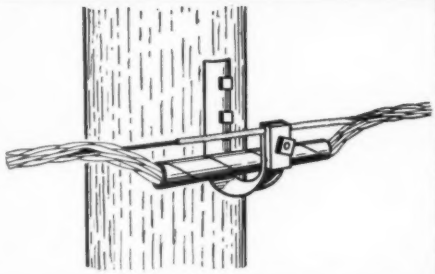


Drop Wire Dead-Ends

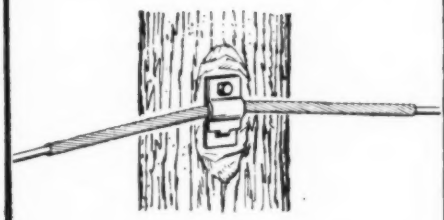


Lashing Rods

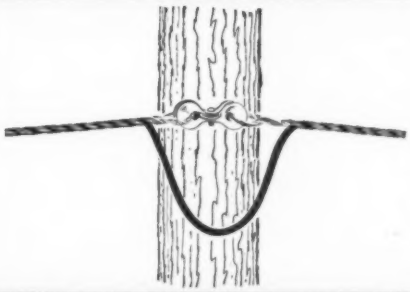
Splices for Line Wire and Messenger



Armor Rods for Insulated Messenger



Line Guards



Dead-Ends for Self-supporting Cable

PREFORMED TELEPHONE LINE ACCESSORIES

. . . easiest to install

. . . safest to use

most dependable in operation

Preformed Line Products are installed easily, quickly, safely and without the use of special tools. They give complete protection, yet firmly grip and securely hold messenger or strand. The result: a sure, firm and safe installation. See your Telephone Distributor today.

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PREFORMED LINE PRODUCTS COMPANY

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Find it fast in these national magazines:

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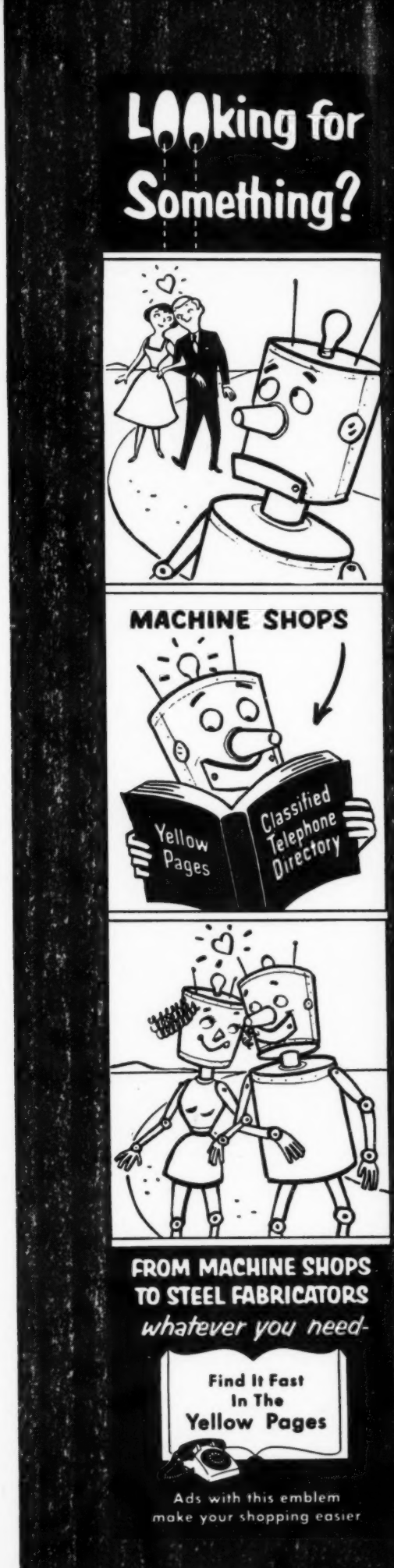
FAMILY CIRCLE
CORONET
GOOD HOUSEKEEPING
LADIES' HOME JOURNAL

The humorous advertisements that you see on this and the opposite page are typical of the series which appear throughout the year in the widely circulated national magazines listed above.

Promoting greater use of the Yellow Pages promotes more business for Yellow Pages advertisers and for all of America's telephone companies.

Working together to bring people together
BELL TELEPHONE SYSTEM


Looking for Something?
MACHINE SHOPS
Yellow Pages
Classified Telephone Directory
FROM MACHINE SHOPS TO STEEL FABRICATORS
whatever you need-
Find It Fast In The Yellow Pages
Ads with this emblem make your shopping easier

Looking for Something?

REAL ESTATE

FROM REAL ESTATE TO COSTUMES
whatever you need-

Find It Fast In The Yellow Pages

Ads with this emblem make your shopping easier

"THAT'S MY HENRY...

I keep telling him,
If you want it fixed right
and fixed right away
look under plumbers in the
Yellow Pages!"

One of a series appearing only in CORONET

Yellow Pages advertisers in your territory can profit by using this tie-in emblem in their local advertising.

construction and maintenance DIGEST

- **Keep the charge**
- **Easy wedding**
- **Pennies for power**
- **Beating attenuation**
- **Self-supporting**

Published regularly to help you get the most out of your materials and supplies dollar

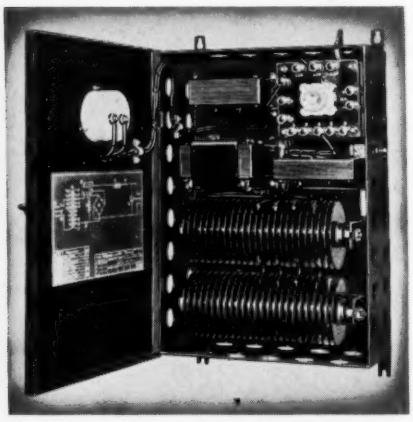
by Ernest P. Riviere, Jr., Inside Sales—San Francisco

The other day I chalked up my 5th year with Stromberg-Carlson—but one of the orders I filled that day made me feel pretty much a youngster in the business: I sent out a battery we promise will serve you for 25 years! That started me thinking about other equipment we supply. Here, the guarantee is a quarter century—there, it's for life, **period.** And always, the guarantee is a double one—ours, and the maker's. It made me realize again how much your orders mean to the science of telephony. It's your supply business that helps us continue our research for ever-better, ever-longer-lived telephone equipment. Thanks a lot!

Here's a charger that adjusts itself to match battery drain

Daily load demands can vary all over the lot. That's why you need a battery charger that adjusts its output automatically to maintain your batteries in peak condition.

Such a unit is the Schauer Automatic Battery Charger. That word "automatic" is a most important



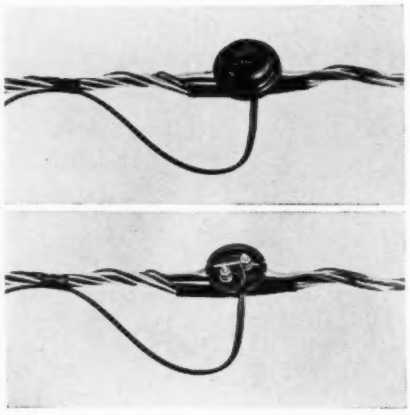
A self-regulating battery charger that keeps your storage batteries in top condition and prolongs their life.

part of its name. The Schauer Charger will maintain a charging rate in proportion to the drain on the batteries within its rating.

The Type RB illustrated is completely automatic, with no relays, vibrators or tubes requiring attention or adjustment. Entirely noiseless, it continues to charge even while the telephone system is operating—with no hum or interference.

Makes Tough Connection Simple

You can greatly simplify the tough unprotected single pair connection between drop or bridle wire, and RD or Urban Distribution wire—with Reliable Wire Terminal No. 5500.



Work-saving wire terminal by Reliable Electric Company

A stainless steel clamp mounts the unit securely on the steel support wire. Neoprene cover snaps securely to make a weather-tight enclosure. The body is rugged molded phenolic, with binding posts and mounting screw molded integrally.

You don't have to cut the RD wire when installing. Simply skin and terminate.

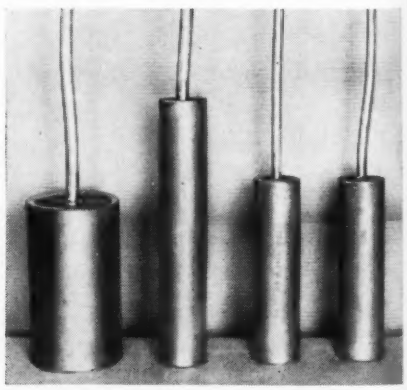
Battery has lowest yearly cost

There's an easy way to save money on switchgear, signal and alarm systems or emergency light and power applications.

Gould Planté rolls up excellent service records—cuts maintenance to a minimum.

Amazing service records have proved that Gould Planté batteries have the lowest yearly cost of any battery you can use. Pure lead positive plates help make this possible.

Reduce unit loss by as much as 60%



Available with lead or plastic stubs.

When you use telephone cables in place of open wire circuits, you're faced with the problem of attenuation resulting from the higher series resistance, higher capacitance and reduced inductance of the cable circuits.

The solution is: telephone circuits with CEECO Loading Coils.

XUM

When you apply these coils, you can reduce unit loss to ½ or ⅓ of the non-loaded value. For example, you can make a 24 gauge cable pair as satisfactory as a non-loaded 19 gauge cable pair having three times as much copper.

In addition, with these loading coils made by Communication Equipment and Engineering Company, you can use fewer repeaters, or avoid them altogether by extending transmission range.

Distribution wire needs no cross arms

There are several reasons you can enjoy lower installing costs with this Whitney Blake multi-pair distribution wire.

Because it's self-supporting, it needs no cross arms. And it's easy to string because it's lightweight and comes in long lengths—up to 4000 feet per reel.

Self-supporting distribution wire has built-in messenger.

This wire has excellent electrical characteristics: low-loss transmission, low capacitance, high dielectric strength.

Its polyethylene insulation provides excellent weather resistance.

The wire is available in 3, 6, 11 and 16 pairs. The conductors are of #19 A.W.G. soft copper.

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burse the company for funds used for construction, completion, extension and improvement of its facilities and those of its subsidiary, West Coast Telephone Co. of California.

Rate, Sale, Financing Pleas Heard in Ohio

Recent Ohio Public Utilities Commission activities were reported on July 11 as follows:

The Sycamore Telephone Co. received authority to furnish colored telephone sets at an installation charge of $10 with no recurring charges.

•

The Ohio Bell Telephone Co. and the Troy-Tipp Telephone Co. renewed their contractual arrangement for extended area service between the Tipp City exchange of the Troy-Tipp company and the New Carlisle exchange of Ohio Bell.

•

Authority has been granted the Home Telephone Co. of Fairview, for the purchase of the Cumberland Telephone Co.

The commission noted the initiation of automatic service of the type provided subscribers of the Fairview and Quaker City exchanges of the Home company and authorized the purchaser to charge similar rates for the same type and grade of automatic dial service. Such net rates are as follows:

	Business	*Residence*
One-party	$6.00	$4.75
Five-party	4.75	3.25
Ten-party	4.75	3.50

The Fairview exchange has approximately 338 subscribers and Quaker City has approximately 416 subscribers.

•

The Warren Telephone Co. has asked the commission for approval of security issues in the amount of 1½ million dollars of first mortgage bonds, 5½ per cent sinking fund, series K due 1982; 8000 shares of its no par $5.00 dividend preferred stock, and the issuance of 12,500 shares of its no par common stock.

General of California Preferred Issue Okd

California Public Utilities Commission on July 11 was reported to have authorized General Telephone Co. of California, Santa Monica, to sell 500,000 shares (10 million dollars) of $20 par cumulative preferred stock.

Proceeds are to be used to repay bank borrowings and for other corporate purposes.

Enlarges Base Rate Area in California; Reduces Rates

A reduction in gross revenue of $10,300, equivalent to a reduction in earnings of 10 per cent, was authorized on July 3 by the California Public Utilities Commission for the Gilroy Telephone Co.

The rate reduction—effective Aug. 1 on one, two and four-party residence service — results from increasing the base rate area and thus reducing mileage charges to about 123 subscribers.

The Gilroy company's president, Dr. E. J. Chesbro, stated:

"We attribute this reduction largely to having converted to dial in July 1955 and the immediate pick-up of savings in operating cost. Then, too, our own people have done a very good job.

"Two years of dial experience and nearly a year of nationwide toll dialing —with SATT (Strowger Automatic Toll Ticketing)—have also added to our operating efficiency."

Illinois Commission to Hear Rate and Sale Pleas

Hearings scheduled for the week of July 15 by the Illinois Commerce Commission included:

July 15: Proposed sale of Shipman Telephone Co. to Midland Telephone Co.

July 17: Application by Cresent Telephone Co. to raise rates.

July 18: Plea for increased rates by Northwestern Telephone Co.

Indiana Governor Proclaims Independent Telephone Week

George A. Schumacher, secretary-treasurer of the Indiana Telephone Association, reported on July 8 that Governor Harold W. Handley has proclaimed the week of Sept. 8-14, 1957, as Independent Telephone Week in Indiana.

The governors of Maryland, Missouri and Tennessee have also issued proclamations regarding observance of Independent Telephone Week in their respective states.

Minnesota Sale Authorized

The Minnesota Railroad & Warehouse Commission on July 8 authorized Halma Telephone Co., serving about 61 stations, to sell all of its property to the Wikstrom Telephone Co., Inc., Karlstad.

Approve Two Neb. Raises

The Nebraska Railway Commission on July 2 granted increases in revenue to the Skeedee Independent Telephone Co., St. Edward, and the Northeastern Telephone Co., Elgin.

KLEIN

preferred by linemen
. . . electricians

When it comes to leather goods for linemen or electricians, the name Klein today stands for the highest in quality as it has since the first wires were strung.

In Klein-Kord, too, Klein offers to industry the first specially woven fabric for safety straps—a fabric designed to permit the use of a tongue-type buckle without the risk of slitting or ripping under severe strain.

Now in Nylon Klein-Kord safety straps Klein still leads with the newest in safety equipment specially designed for use by utilities wherever power or communication lines are strung.

Write for Free Tool Guide
A free copy of the new Klein Pocket Tool Guide will be sent to anyone interested on request.

Ask your supplier

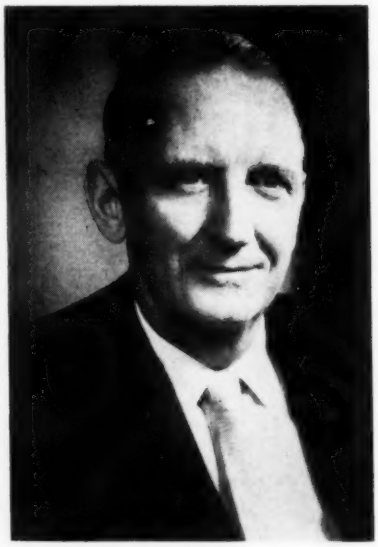
Foreign distributor:
International Standard Electric Corp., N.Y.

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

Obituaries

ROBERT W. SEDAM, 52, assistant vice president public relations of the American Telephone & Telegraph Co., died of leukemia on July 9 after an illness of a few weeks.

Mr. Sedam has been in charge of AT&T's press information and customer relations division for the past seven years.



R. W. SEDAM

He was born in Indianapolis, Ind. He went to work as a commercial representative for the New York Telephone Co. in 1927 after graduating from Swarthmore College. Mr. Sedam served in a number of commercial and staff positions for the New York Telephone Co., and was made assistant vice president in charge of personnel in 1946. He joined the staff of AT&T in 1950, as assistant vice president in public relations.

Mr. Sedam was a member of the Overseas Press Club of America, the Public Relations Society of America, and the American Management Association. He was a director and member of the executive committee of the National Information Bureau.

Survivors include his wife, Ruth Newburn Sedam; two sons, Lt. Robert G. Sedam of the U. S. Marine Corps, and William T. Sedam of New York City; and his parents, Dr. and Mrs. M. D. Sedam of Yarmouth, Mass.

•

EDMOND G. BENOIST, 48, vice president and general commercial manager of Automatic Electric Co., was killed in the rain on July 12 when his automobile collided with a Chesapeake & Ohio freight train at a crossing about 2 miles south of Bridgman, Mich.

He was on his way north for a weekend visit at the Douglas, Mich. summer home of his parents, Mr. and Mrs. William F. Benoist.

E. G. BENOIST

Born in St. Louis and a graduate of New Trier High School, Winnetka, Ill., and Dartmouth College, Mr. Benoist had been with Automatic Electric since 1930. His father, a telephone industry pioneer, is a former president of Automatic Electric.

Surviving beside his father and mother, Adelaide, are a brother, William F., Jr., who is with Illinois Bell Telephone Co., and a sister, Mrs. Elmira Lee Ibsen (Norman H.) of Chicago.

•

T. A. SINGER, owner and manager of the West Texas Telephone Co., Dimmitt, Tex., and a director of the Texas Telephone Association since March 1943, died recently.

Beginning in the early 20's, Mr. Singer participated in the telephone exchange development of the Panhandle section of Texas.

He is survived by his wife; three sons, Elton, Robert and James, and one daughter, Mrs. Juanita Stiff.

•

C. F. FAIRLY, retired western district manager, Kellogg Switchboard & Supply Co., a division of International Telephone & Telegraph Corp, died in Los Angeles on June 7.

Known as "Ping" to his many friends throughout the telephone industry, he retired Dec. 31, 1956, after 46 years with Kellogg.

A Prime Necessity

"In America today, a man cannot earn a living with just two hands. He needs tools and power and these you cannot get without investment." — GEORGE M. HUMPHREY, *Secretary of the Treasury.*

XUM

IN THE NATION'S CAPITAL

Concluded from page 18

tion has approved the one-thousandth loan to improve and extend telephone service in rural areas. Farmers Independent Telephone Co. of Grantsburg, Wis., received this loan in the eighth year of REA's rural telephone program. It was in the amount of $492,000.

As of May 31 the total amount of REA loans for rural telephone purposes since the beginning of the program in 1949, was $381,985,542. The number of loans approved was 540. Commercial telephone companies received not only more REA loans but also more money. For the 336 loans approved for commercial telephone companies, the total amount was $197,571,350. Although no official figure was available for the final end of the fiscal year (July 1), it was obvious that REA loans for telephone companies had gone over the 200 million dollar mark by that time. REA loans to cooperatives (again as of May 31, 1957) total 204, amounting to $184,414,192.

The number of farms having telephone service, incidentally, is now well over the halfway mark ever since its steady climb from a low mark of 25 per cent, estimated at the time the REA rural telephone loan bill was passed. It will be recalled that the total number of farms with telephones reached as high as 38 per cent back in 1920, according to U. S. Census figures for that year. Of course, the type of rural telephone equipment then in use was almost entirely magneto.

The last official census figure on the number of farms with telephone service was in 1954 and was given as 48.8 per cent. But a sample taken during the year 1956 indicated that 51.9 per cent then had telephone service. As of today there can only be "guesstimates" based on the number of new farm telephones reported in fragmentary statements from different Bell and Independent companies as well as REA. The total is probably in the order of 54 per cent.

Two Signal Corps Engineers Get Record Sum for Process

Two engineers employed at the U. S. Army Signal Engineering Laboratories, Fort Monmouth, N. J., received a record joint cash award of $10,000 in ceremonies at the Pentagon on July 10.

The presentation was made by Secretary of the Army Wilber M. Brucker, to Stanislaus F. Danko of Neptune, N. J., and Moe Abramson of Long Branch, N. J. The sum represented the highest amount ever presented to Department of the Army civilian employes.

Mr. Danko and Mr. Abramson developed a process of automation known as "Auto-Sembly" which, it is estimated, will save the government 4.2 million dollars in the first year of operation.

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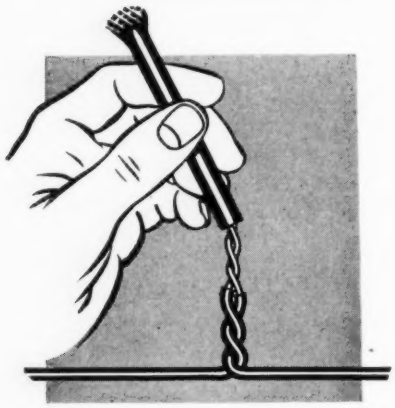

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STATE-FEDERAL REGULATION

Continued from page 21

substance, that each company recover its full costs of handling interstate tolls, and that the remainder of the revenue be divided among the participating companies on the basis of net plant investment in such interstate toll business. The Bell associated companies then allow their Independent connecting companies certain commissions and compensation, according to their individual contract agreements, which attempts to give Independent companies about what they would receive from division of revenue, without the necessity for the complex studies required.

However, operating conditions and expenses vary so widely among the Independents that the toll business is sometimes subsidizing the local service, and, in some cases, the reverse is true. Furthermore, toll rate patterns are, in most cases, established for Bell System operations.

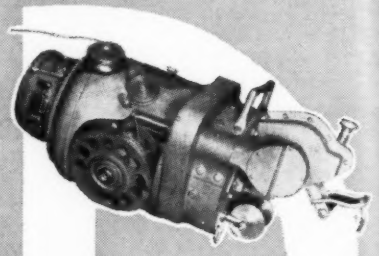
It seems very appropriate that our Mountain-Pacific conference commissions seriously consider the message toll disparity problem at this time. The NARUC and the FCC have a working committee now actively engaged in making revisions in the separations manual. The question immediately arises, "What is needed in the revisions of the manual to solve, or at least alleviate, the disparity in toll rates, and to obtain more equitable distribution of revenues among the telephone companies?"

It seems essential that any revisions, at this time, should be based upon current conditions, rather than preconceived concepts promulgated by the telephone industry. Also, establishment of longer range objectives seems most important. Thus far, the problem has defied the concerted efforts of the regulatory bodies and the telephone industry. Toll business in the United States has long ago become of age; it is no longer a supplement or adjunct to exchange service. It can well afford to pay its own way to the fullest extent, and it is rapidly increasing in volume.

Realistic Approach Needed

First of all, a realistic approach is needed that will apply sound separation procedures so that there will be no further need to accomplish transfers of costs and investment from intrastate to interstate operations by such means as the Charleston and Modified Phoenix plans. It is essential that fairer and more equitable procedures be developed for separations between exchange and toll services. The pres-

*Dependability



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ent procedure for separating exchange and toll costs are based largely upon "actual use and occupancy." Due to the difference in the nature of toll service compared to exchange service, and because of the restrictive toll rate structure from a usage standpoint, contrasted with the rates for unlimited usage of exchange service, the "actual use and occupancy" formula does not allocate adequate costs to toll service with the modern development of broadband carrier equipment.

Also, present procedures give only limited consideration to direct assignment of facilities required wholly or primarily for toll service such as the 2-5 numbering plan, toll connecting trunks, and interstate dialing equipment.

Various plans have been considered from time to time to solve this problem, however, it appears to me that there is one that is simple, yet sound and reasonable, which need not materially alter existing regulatory jurisdictions.

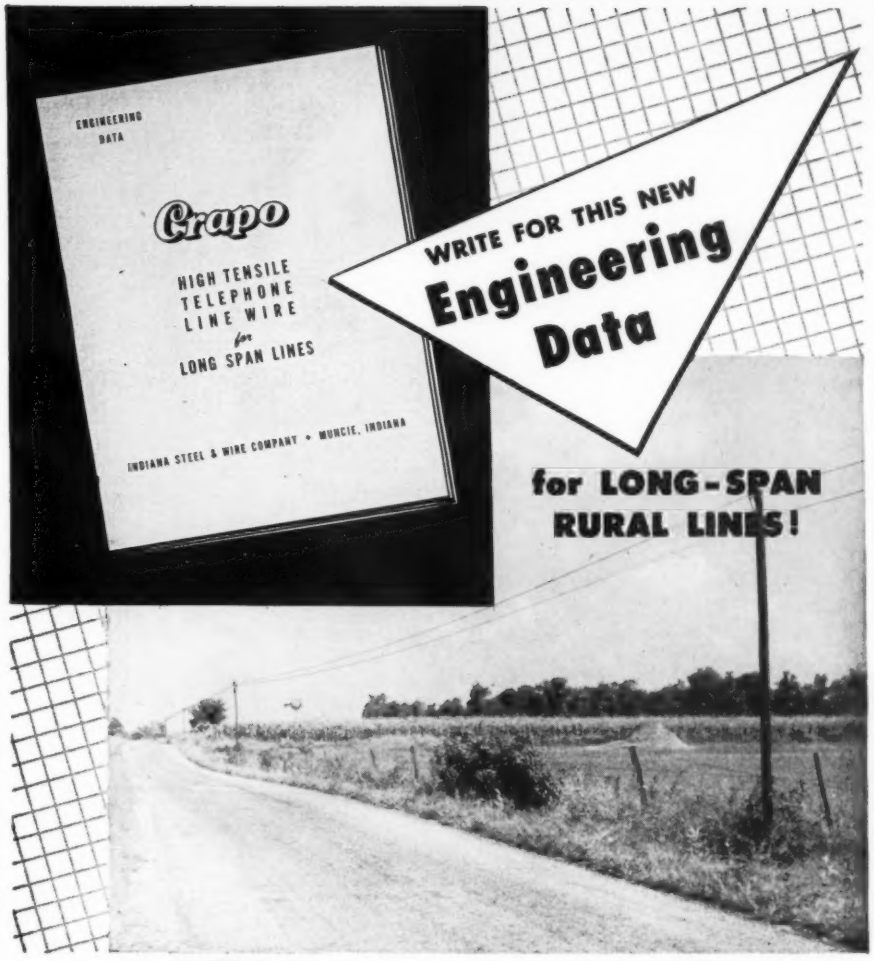
This plan would be to treat toll service nationwide, as a whole, in a manner similar to that now employed for interstate traffic by the Bell System. A nationwide toll rate schedule would be designed, regardless of intrastate or interstate business, adequate for the needs of the public and the telephone companies. This schedule might be determined by a joint committee of the NARUC and the FCC with the cooperation of the telephone industry, to be proposed for adoption by each state, as well as the FCC. No state would be required to adopt the uniform rate schedule, but would be limited in the participation of division of revenues to the amount produced by the application of the uniform rate.

All Share Equitably

The division of revenues among the operating companies would then be made by first covering the full costs incurred, and the remainder would be divided in proportion to net telephone plant, similar to the divisions-of-revenue agreements now in force between the American Telephone & Telegraph Co. and its associated companies for interstate traffic. The nationwide toll rate schedule would be subject to adjustment only by review of the toll revenue requirements on a nationwide basis by the joint NARUC-FCC committee.

Under this plan, all interested jurisdictions and all segments of the telephone industry would share equitably in the rate-making and in the distribution of toll revenues.

This plan would provide for the sim-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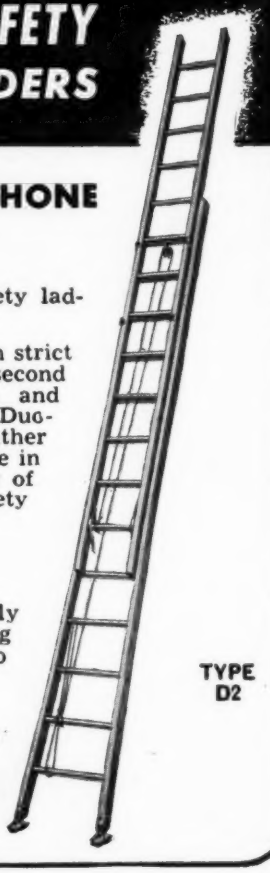

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plification of separation procedures. The only study requirements would be in the allocation of exchange plant and expenses to toll, thereby making it practical for the many small companies to participate on a division of revenue basis.

It would require, first of all, recognition by the state and federal jurisdictions and the telephone industry that it is impractical and not in the public interest to separate costs and investment between state toll and interstate toll operations. State and interstate toll business are intimately interwoven nationwide, and from an operating standpoint, such traffic differs only by length of haul. Toll rates must be designed, not only to produce revenues adequate to meet reasonable operating costs, but also must be designed to meet service requirements of the public, encourage use of the service, provide an equitable distribution of service and charges, permit economic operation, and maintain simplicity of administration and ease of understanding. Furthermore, there will be changes in toll costs, from time to time, that will not equally affect short and long-haul operations.

Requires Cooperation

This plan would require full cooperation of the state and federal regulatory agencies and the telephone industry. Under the circumstances, it it no longer logical or reasonable for each regulatory commission to tackle the disparity problem individually, as so often has been the case in the past, with the resulting inequality of treatment of the public and investors.

In my opinion, the time is ripe for such cooperative action. For many years, the NARUC has been organized and has functioned to the immense benefit of the state commissions, and the cooperation received by this organization from the FCC in recent years in working out problems of mutual interest has been well demonstrated.

This plan would:

(1) Completely resolve the disparity in message toll telephone rates and gain substantial public and regulatory benefits.

(2) Cause intrastate toll operations to stand fully on its own without subsidization from exchange service revenues.

(3) Simplify and reduce the cost of accounting for toll service, which now requires separation between state and interstate operations.

(4) Place all segments of the telephone industry on an equal basis in participation in the nationwide toll business.

It appears to me that it behooves

XUM

all of us to remember that the state regulatory bodies accomplish a great bulk of regulation. Further, the present federal administration seems to have the entirely reasonable view of entrusting to the states the regulatory function in all instances, except where federal supervision is absolutely required.

The number of state regulators who have been selected recently for appointment to federal regulatory positions demonstrates the increased recognition of the effectiveness of state regulation. We, in the Mountain-Pacific conference, alone have seen five of our people leave to accept federal regulatory positions. I feel sure that the future is bright in this area of intermingling jurisdictions, apparent by the degree of cooperation evident today.

The responsibilities of state commissioners in this Mountain-Pacific area are particularly important, at this time, because the region is growing so fast, and conditions affecting the utilities are changing rapidly. The duties of the commissions have been well described as "balancing the consumers' and investors' interests". When conditions are changing rapidly, it is particularly important that the commissioners consider the past, but more importantly, the future period when the rates will be effective. The consumers' interests obviously will be damaged quite as much by rates too low to enable the utility to improve and expand its services as by rates so high as to be unreasonable. The commissioner who maintains an even course in these circumstances will serve the public well, even though it may seem to him that neither side is satisfied with his decision.

Defense Communications Coordinator Named in N. C.

Jennings B. Teal, who has been serving as special staff assistant to the operations vice president of the Carolina Telephone & Telegraph Co., Tarboro, N. C., has been appointed to the newly-created position of defense communications coordinator for the company.

He has been with Carolina T&T since 1948 and formerly served as transmission and protection engineer and as building and equipment engineer.

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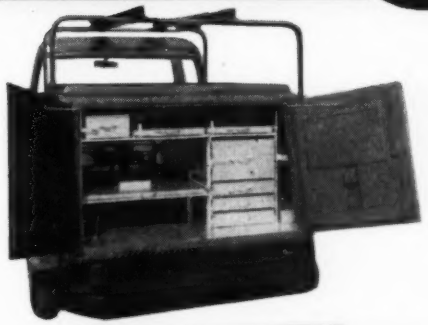

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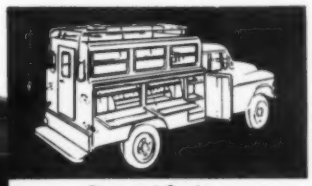

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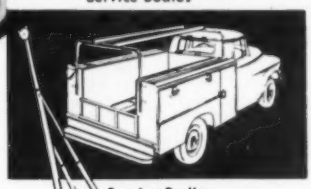

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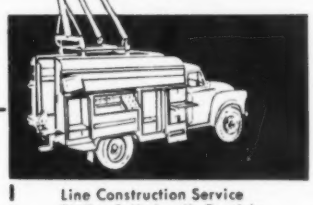

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2-5 NUMBERING PLAN

Concluded from page 25

These figures show the size of the job, but the only way to appreciate its complexities is by reviewing, as we have, the past.

While the future course of the basic numbering plan seems fairly well established by now, no telephone people, least of all those who have these problems to deal with, would want to guarantee that there will be no further changes.

Probably the most descriptive treatment of the 2-5 numbering plan, from which my material up to this point has come, is an article in the *Bell Telephone Magazine*, Winter, 1954-55 issue, entitled "What's Your Telephone Number?" and written by Stanley G. Ericson.

In short, the 2-5 numbering plan has as its purpose "destination routing" instead of the present point-to-point routing. All the information that's needed is (a) where to go, and (b) what direction to start—you don't have to know how to get there, as the equipment figures this out.

Once you know the relationship of your own office to the nationwide toll dialing network, the three-digit area code and the 2-5 number, you're equipped to dial any call which is dialable.

When the plan is working fully, anyone will dial only seven digits to reach another customer in the same NPA, 10 digits to reach anyone else.

It looks as if a businessman will have an answer for the question, "What's your telephone number?" in the near future. He may very well add the proper three-digit NPA code to the 2-5 number he now uses, so that anyone, who wishes, can dial his station direct from near or far.

Yes, we have come a long way since the first telephone directory, containing only names, was published. Numbers, making it easier for anyone, anywhere, to dial and reach you, are here to stay.

Bricks of Straw

"People have lost the will to work hard, have lost their sense of pride in artisanship, have lost the thrill of making decisions and living as free men. And why not, when government volunteers baby sit for us from the cradle to the grave and assume responsibility for our care of our loved ones, a responsibility each of us considered a sacred privilege."—THE REVEREND JAMES W. FIFIELD JR., *pastor, First Congregational Church, Los Angeles, Cal.*

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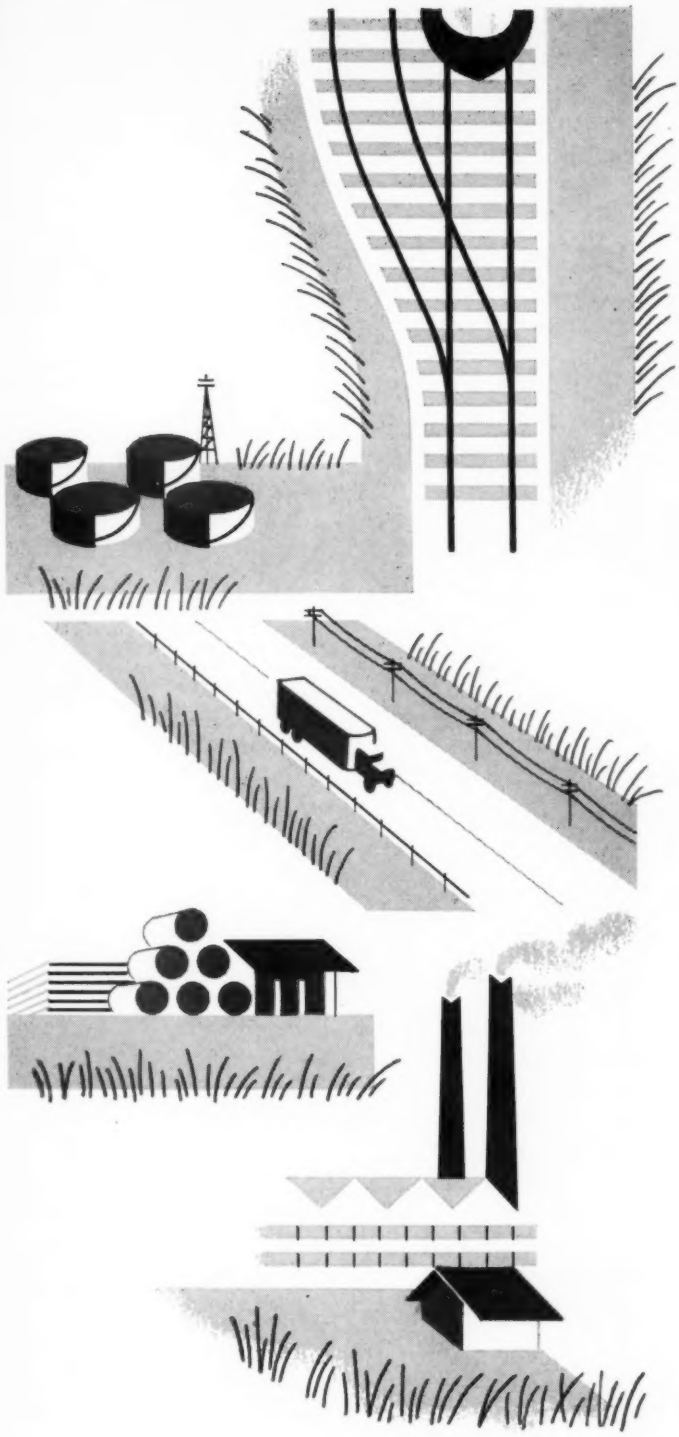

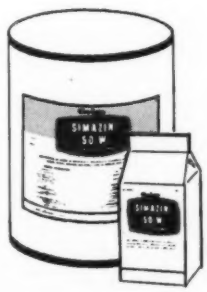

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Simazin 50W, a triazine compound, is not a contact or foliage herbicide, but acts on the plant roots, and should be applied just before germination or emergence for best results. Before using Simazin 50W for long residual weed control, existing plant growth should first be removed by use of a contact herbicide, or by mowing or ploughing under.

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One pre-emergence application of Simazin 50W applied at the rate of 10 lbs. per acre controls most grassy and broadleaf weeds for about a year. The material is economical and easy to use. At the maximum rate of application, less than ½ lb. is required to treat 1,000 sq. ft.

Controls a Variety of Weeds

Simazin 50W controls a wide variety of grasses and broadleaf weeds including barnyard grass, witch grass, yellow foxtail, wild oats, crabgrass, broadleaf plantain, dandelion, lamb's quarters, pigweed, ragweed, nightshade, purslane, velvetleaf and mustard.

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Simazin 50W has very low toxicity to humans and domestic animals. It is non-corrosive and can be removed from spraying equipment by merely flushing thoroughly with water.

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CALIFORNIA CONVENTION

Continued from page 34

not only because of the importance of the decisions to be made, but also because of the complexity and multifarious character of the problems presented for analysis and determination.

"After the lapse of a reasonable time, however, when one develops a sound perspective, with the aid of our experts of the staff, these problems have a way of falling into their respective spheres so that a proper comprehension of them develops. . . .

"In my long experience as a lawyer, I have dealt with many state and federal agencies and I have yet to encounter one that even superficially, in a small degree, compares with the general functioning of this commission and the cooperation given by those especially skilled in the several fields over which the commission has jurisdiction."

Mr. Dooley said he had particularly observed the dedication of the commission to the public interest. He added, "When I use the phrase 'public interest' I must make myself clear. This phrase, in my opinion, connotes not only the rate-payers, but also the utilities serving the public. The interests of both, in my opinion, constitute the public interest. No one having a modicum of intelligence could truthfully gainsay that the essential service provided by utilities renders their financial, plant and service stability a necessary segment of the public interest."

The talk given by Mr. Cantlen, was titled, "Safety—A Family Affair."

"For some reason," he observed, "—and to this we don't have the answer—whenever people leave the job at five o'clock a big majority also leave behind most of their training in safety. They act and do things they would never think of doing on the job. They rush down the stairs for the bus or their pool car. They jay walk. They do hundreds of foolhardy things to endanger their limbs and life. And they do it without thinking.

"Here we have the area that presents the problem, namely, mental attitude, awareness toward caution and care, changes in some people when they are away from the job—when they are on their own." He continued:

"I'm going to try to avoid statistics as much as I can for this discussion because I want to stay more in the realm of ideas. But may I give you four figures. . . .

"In the average of the past 10 years 173 Bell System employes have died in accidents off the job to 15 on the job, a ratio of about 11½ to 1.

"In 1956, 208 employes lost their lives in off-duty accidents, while five died in accidents on duty, a ratio of 40 to 1. Don't these figures tell a tragic story?

"I think this general relationship would be found true in most, if not all, industry. We have made a full-time job of safety during working hours. But off-duty safety has, I'm afraid, received only a light touch. Striking contrasts in results bears witness to this.

"Speed, power, height, electricity—in ever increasing levels—are doubtless the main causes but not the only ones. Let me give a few actual examples.

"One woman was gone for nine days. She had sprained her back muscles pulling on her girdle. One of our women broke her collar bone while doing calisthenics and was off the job 42 days. Another scalded her hand while spearing corn in a cooking pot and was away for three days. Another started to sit on the bed and instead sat on the floor. She was off the job for 14 days. Another sprained the ligaments in her wrist while taking a ballet lesson. Her desk was vacant for 40 days."

Mr. Cantlen commented that all these accidents certainly could be classified as preventable. But, preventable or not, they occurred, he stated, and they may well cause as much personal and family suffering and inconvenience as the car smashup or the bandsaw that severs fingers and thumbs or the ladder that collapses and causes gashed limbs or broken bones. Then he asked:

"What causes an accident? One of our experienced linemen found it necessary one sunny, calm day to remove the crossarm at the top of a telephone pole. He took the time to put on his safety glasses and gloves, went up the pole carefully, secured his belt properly and then proceeded to take the nut off the bolt that secured the crossarm.

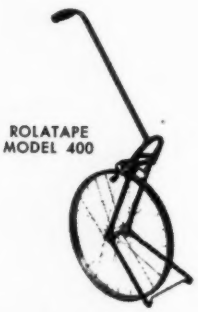
"When the nut was removed he unhooked his belt and prepared to change his position. In this process he grasped the crossarm. Well, you know what happened. The arm fell free and the man fell along with it.

"Luckily he was not killed. But why did he do that? Why would he grasp an unbolted crossarm? He knew better and freely admitted he did. He had done similar jobs for years without accident. What caused him to momentarily forget?

"Well, we want to know that too—because the answer reaches into the reasons why—every now and then—even the most skilled workmen have mental blocks—blank spaces—moments of temporary abstraction."

Continuing, Mr. Cantlen said, "The dangers of just living seem to be greater than the hazards of working. Why is that? Is it because we haven't adapted ourselves to the dynamics of today's way of life? Let's think about that for a few minutes.

"Our environment, as we go through



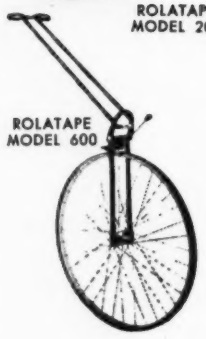
ROLATAPE is the Fast, Efficient, Economical Modern way to measure. Model #400 is widely used by Road Construction Companies, Telephone Companies, Utilities, Sewage Departments and many other industries where measurements are important.

MEASURING time is cut to a fraction with Rolatape. Model #200 is extremely popular with Real Estate Men, Appraisers, Traffic Officers and many others who demand fast, accurate, measurements.

WHEELS on all Rolatapes are precision calibrated, and can be depended upon for long-life service. Model #600 is a special model for long-distance, acreage measuring and for use over rougher terrain.

ROLATAPE
MODEL 200

FOR FAST, ACCURATE measuring—Rolatape Measuring Wheels are the answer. Models #400 and 600 measure distances up to nearly nineteen miles.



MEASURING is simple, time-saving, and efficient when you use a Rolatape. FOR COMPLETE DETAILED ROLATAPE INFORMATION, SEE YOUR DEALER, DISTRIBUTOR, OR WRITE TO:

ROLATAPE, INC.

Factory: 1741 Fourteenth Street, Santa Monica, California

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What to do?

The year's

half thru

and

we don't seem to

catch

up

with the plant and

equipment needs —

NEED HELP!

Call or wire us — for

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TAILOR-MADE to suit your needs!

Sales, technical and factory people are a close-knit group at Kennecott! They're experts at working together without fuss or delay, producing telephone cable to customers' specifications. This flexible organization of specialists has a wealth of practical know-how on tap. You *know* the cable they make for *you* will stand the test of time. You see, lines of Kennecott Telephone Cable have been delivering fine service since 1897! Call the Chase sales office near you for full details.

IT'S **KENNECOTT** TELEPHONE CABLE

INDEPENDENT

CHASE BRASS & COPPER CO., WATERBURY 20, CONN.
DISTRIBUTOR FOR

KENNECOTT WIRE & CABLE CO.

SUBSIDIARIES OF KENNECOTT COPPER CORPORATION

CHASE WAREHOUSES and OFFICES:

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Boston	Dallas	Indianapolis	Newark	Pittsburgh	Seattle
Charlotte	Denver	Kansas City, Mo.	New York	Providence	Waterbury
Chicago	Detroit	Los Angeles	(Maspeth, L. I.)	Rochester	

00 pounds

COMPRESSION

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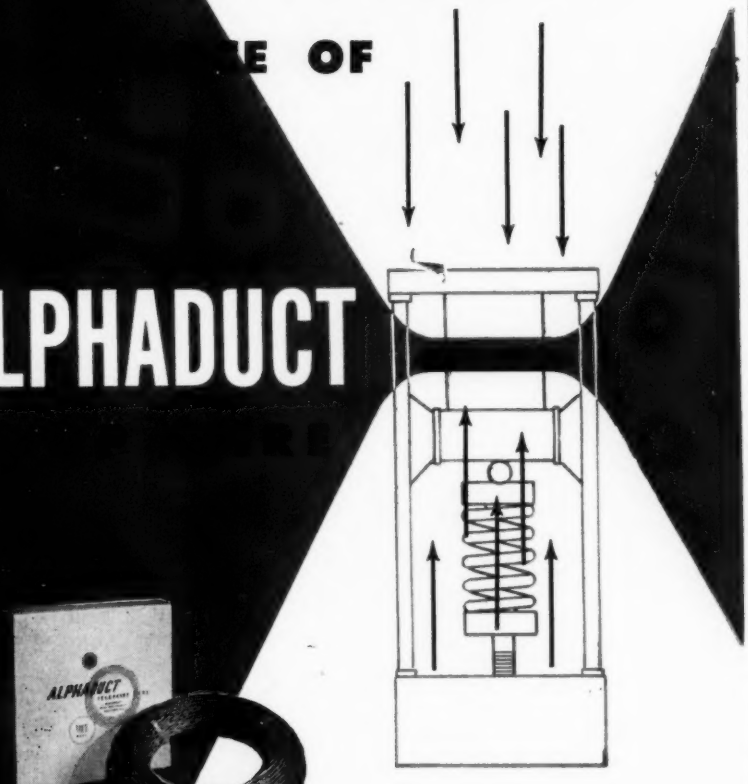
ALPHADUCT



Alphaduct drop wire is designed and built to be the longest lasting drop wire you've ever installed. It's tested . . . completely, thoroughly and often to make sure that every single coil is up to Alphaduct's rigid standards.

Here's how the insulation is tested to make sure it won't crush.

Short lengths of Alphaduct are placed between the steel plates of a compression testing machine. These plates are then forced together at uniform speed until the insulation crushes. Alphaduct parallel drop wire has to withstand a minimum load of 1500 pounds before it breaks. Each conductor of Alphaduct twisted pair will withstand a 1000 pound pressure.

You don't have to worry about a little rough handling breaking down this kind of tested insulation. Try Alphaduct drop wire. It's dated, so you can see for yourself the extra wear it provides.

ALPHADUCT WIRE AND CABLE COMPANY • NEW BRUNSWICK, N. J.

NATIONAL DISTRIBUTORS • AUTOMATIC ELECTRIC SALES CORP., CHICAGO, ILL.
LEICH SALES CORPORATION, CHICAGO, ILLINOIS
REGIONAL DISTRIBUTORS • PANKEY SUPPLY CO., CHARLOTTESVILLE, VA.
THE LINDSAY TELEPHONE SUPPLY CO., CLEVELAND, OHIO

a day of our lives, changes from hour to hour, from minute to minute. From a slow easy going surrounding, reminiscent of our grandfather's era, to one of modern speed and power and dynamic.

"We don't have to get out on the streets or highways or modern factories to experience it. It's all around us. Each of us in one way or another has experienced simple little changes in environment where new danger lurked. But by some simple lessons we adjusted and survived.

"When many of you were very young, perhaps your father or your grandfather taught you how to use a gun. You recall the thrill in that new environment.

"I remember my father didn't teach me to fear the gun—but to know the gun, and how to use it. He taught me how to live with it.

"And I think here's a clue to our objective of safety at all times—a family affair.

"We must teach people how to live with—and not to fear—the dangers they meet in their ever-changing environment today."

The following directors were elected: J. Curtis Newman of Thermal; Peter A. Nenzel of Monrovia; Allan R. Stacey of Sunland; Harlan W. Holmwood of Santa Monica; J. P. Maguire of Taft; W. Gilman Snyder of Weaverville; Donald H. Strahl of Gilroy, and Neal Hasbrook of San Francisco.

The directors elected the following officers: President, Mr. Newman; first vice president, Mr. Maguire; second vice president, Mr. Strahl, and secretary-treasurer, Mr. Hasbrook.

Report REA Loans in Fiscal Year 1957

Loans to extend and improve rural electric and telephone service in 43 states were made by the Rural Electrification Administration during the fiscal year that ended June 30, 1957, the U. S. Department of Agriculture reported on July 11.

Electrification loans went to 369 rural electric utilities in 40 states and Alaska. These amounted to 300.5 million dollars. Telephone loans went to 213 systems in 39 states. These amounted to 81.7 million dollars. Ninety-four new borrowers are included among the telephone organizations that received loans.

At the close of the year REA had 988 active electric borrowers and 551 telephone borrowers. The electric systems were serving more than 4.3 million consumers and the telephone sys-

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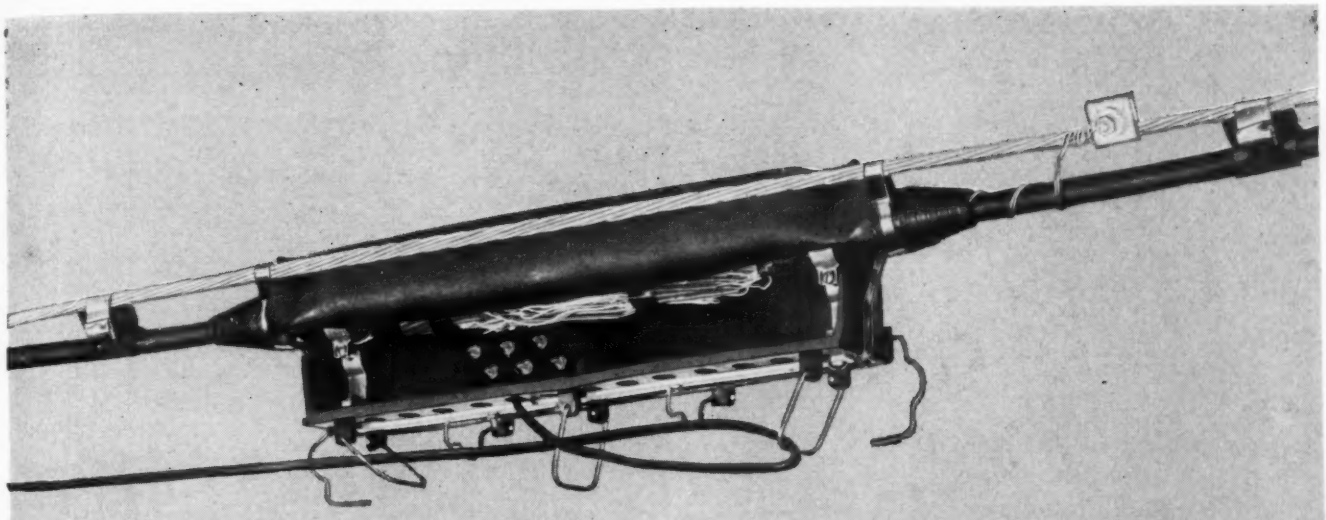
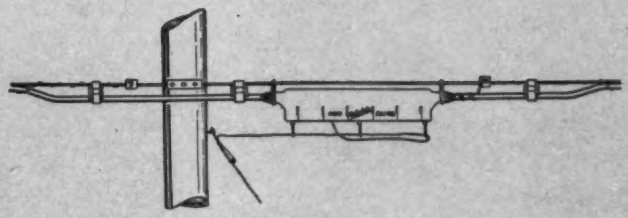




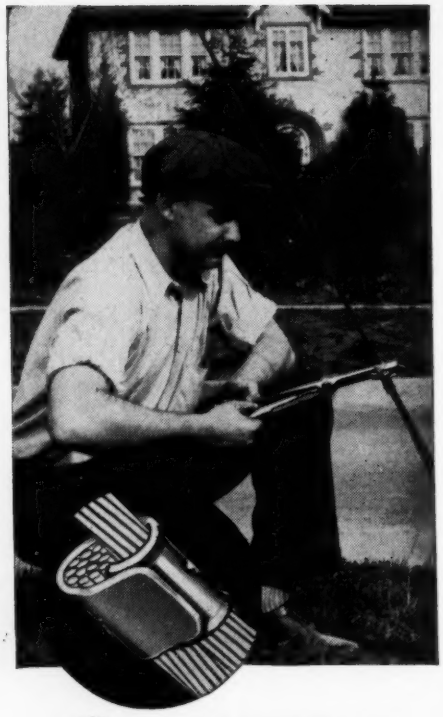
Announcing the ready-access terminal

This new ready-access terminal is first a straight splice for plastic-jacketed, plastic-insulated cable.

An installer-repairman or a cable splicer can add up to four, 6-pair, unprotected blocks or space may be used to include loading coils.

The flexible neoprene housing is workable below zero and is uneffected by summer sun. Good design and best quality throughout insures a long service life.

RELIABLE ELECTRIC CO.
CHICAGO 12, ILLINOIS



One squeeze
SERVES GUY STRAND WITH KEARNEY GUY WIRE CLIPS

Here's the fastest way to neatly and permanently serve up strand ends. The half-formed clip slips easily onto the guy wire and end. It's closed with a squeeze of the KEARNEY Guy Wire Clip Tool . . . or with an ordinary pair of pliers. The whole job can be done in less than a minute.

KEARNEY Guy Wire Clips are available in six sizes of aluminum, galvanized iron and copper.

For Better Construction . . . Safer Maintenance
Specify
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KEARNEY PRODUCTS
JAMES R. KEARNEY CORPORATION
4224-42 Clayton Avenue, St. Louis 10, Mo.
Canadian Plant: Guelph, Ontario

tems had built or were building facilities to bring initial or improved service to 863,000 subscribers. Loans made during the fiscal year just ended will provide initial electric service for about 132,500 consumers and new or improved telephone service, all dial, for 174,600 subscribers.

The following table gives the number and amount of fiscal year 1957 REA telephone loans in the REA programs by States:

	No. of Loans	Amount*
U. S.	221	$81,729,000
Alabama	4	1,113,000
Arizona	2	3,006,000
Arkansas	7	2,392,000
California	2	999,000
Colorado	2	1,815,000
Connecticut	—	—
Delaware	—	—
Florida	1	1,113,000
Georgia	10	2,490,000
Idaho	2	771,000
Illinois	8	4,007,000
Indiana	5	1,999,000
Iowa	9	7,291,000
Kansas	16	4,531,000
Kentucky	8	2,801,000
Louisiana	9	2,285,000
Maine	6	1,762,000
Maryland	—	—
Massachusetts	—	—
Michigan	2	503,000
Minnesota	12	4,595,000
Mississippi	5	1,459,000
Missouri	11	3,714,000
Montana	6	2,146,000
Nebraska	3	1,212,000
Nevada	—	—
New Hampshire	1	220,000
New Jersey	—	—
New Mexico	1	52,000
New York	1	227,000
North Carolina	4	1,219,000
North Dakota	8	4,759,000
Ohio	2	380,000
Oklahoma	7	1,415,000
Oregon	4	1,666,000
Pennsylvania	3	2,672,000
Rhode Island	—	—
South Carolina	3	888,000
South Dakota	2	1,121,000
Tennessee	7	1,795,000
Texas	29	7,421,000
Utah	—	—
Vermont	—	—
Virginia	4	2,575,000
Washington	1	72,000
West Virginia	2	210,000
Wisconsin	10	2,574,000
Wyoming	2	459,000
Alaska	—	—

*State totals are for borrowers with headquarters within the state.

Protection for All

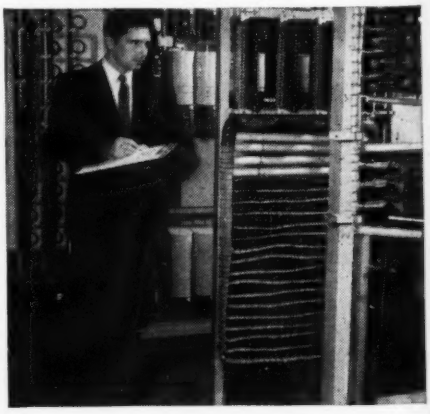
The United States Constitution's chief purpose was to create a structure of government to protect the individual freedom of citizens, to give the citizenry all power over the government. Many Americans carelessly accept our government as a 'democracy.' Actually it is a constitutional Republic. . . . Our Constitution protects rights of minorities which sheer democracy would permit to be taken away by majority vote. This is an extremely important feature of our constitutional republic."—*Dublin (Ga.) Courier-Herald.*

EXTRA Holding Power
QUICKLY Installed
TOUGH For long life

EVERSTICK ANCHORS

For new construction and maintenance — Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resiliant, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA



American Appraisals of reproduction cost may affect rates

An American Appraisal report of the cost of reproduction provides convincing evidence in the preparation of an appeal for adjusting rates to provide a more equitable return.

The AMERICAN APPRAISAL Company
leader in property valuation
HOME OFFICE: MILWAUKEE 1, WIS.

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OPEN HOUSE

Concluded from page 35

tors. The company had just completed a 10,000-square-foot building addition which doubled its floor space. Work was well under way on a new central exchange which would, very shortly, add 5,000 more telephone lines. The accounting department, the only IBM installation in town, had just been moved to larger, more attractive quarters.

The tone and manner of the office tour for open house visitors was kept friendly—on the homespun side. Employes who actually worked in each department were assigned to explain what work was performed at every step along the tour. Visitors were guided through the plant in groups by hostesses selected from the main office staff.

Tours started in the front office and included stops to show the operator switchboard, the service switchboard, the dial relay system, the punching of five-channel tapes on Strowger Automatic Toll Ticketing equipment, and the IBM department and installation equipment. The IBM section proved to be a popular point for a pause and discussion.

This was due largely to the fact that the equipment was not tied up in actual service as were the central office facilities. The machines were set up to run continuing demonstrations on the IBM Tape-to-Card punch and the 403 Accounting Machine, on which bills are written. In this way, each group could be given an individual and impressive demonstration of the telephone company in action.

When the last guest had departed, Mr. Stacey figured the count at around 2,500—a really major impact for any good will promotion.

General System Announces Organizational Changes

Several organizational changes in the operating departments of General Telephone System were announced in New York on July 8 by Donald C. Power, president.

W. M. Driggs, who is currently director of engineering in the operations department of General Telephone Service Corp. in New York, will become operating vice president at General Telephone Co. of Illinois, effective Aug. 16.

Frank D. Reese, currently chief engineer of General Telephone Co. of Pennsylvania, will become engineering director in the operations department

CALCULAGRAPH

Now Automatically gives you accurate Toll Call Records— up to 60 minutes

New style 60 minute elapsed time dial Model 33. Elapsed time 56 minutes 8 seconds.

Photo courtesy of Union Telephone Co., Owosso, Mich.

Now, Calculagraph, the modern dependable computer, automatically figures and prints toll calls up to 60 minutes —no need to add 30 minutes on long conversations.

Thus, Calculagraph adds one more feature to reduce human errors by busy operators and increases the volume of calls handled per operator. Assures you of all revenue due on every call.

For accurate toll call records, for automatic computation of elapsed time, for more efficient operation, install the new 60-minute elapsed time Calculagraph on your switchboard.

Information on this new Calculagraph is yours upon request.

Write today for illustrated brochure to Dept. F.

CALCULAGRAPH Company
HARRISON, N. J.

DEPENDABLE ELAPSED TIME COMPUTERS SINCE 1892

ENDURPRENE

• DROP • BRIDLE

PREMIUM GRADE INSULATION—TOUGH, ENDURING NEOPRENE JACKET

A COMBINATION HARD TO BEAT FOR LONG-RUN ECONOMY AND RELIABILITY

DISTRIBUTED BY

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KELLOGG SWITCHBOARD AND SUPPLY COMPANY

A Division of International Telephone and Telegraph Corporation

MANUFACTURED BY

GENERAL INSULATED WIRE WORKS, INC. PROVIDENCE, R. I.

of General Telephone Service Corp. in New York City, effective Aug. 1.

Harold A. Hahlbeck, who is currently operating vice president of General Telephone Co. of Illinois, will become general plant manager for General Telephone Co. of California, effective Aug. 16.

Louis D. Yard, currently general plant manager for General Telephone Co. of California, will become chief engineer for General Telephone Co. of the Southwest, effective Sept. 1.

Evert E. Karlsson, who is currently chief engineer for General Telephone Co. of the Southwest, will become special studies engineer in the operations department at General Telephone Service Corp. in New York City, effective Sept. 16.

Richard L. Ohlson, who is currently special studies engineer for General Telephone Service Corp., will become chief engineer of General Telephone Co. of Pennsylvania. It is expected that Mr. Ohlson will assume his assignment in Pennsylvania not later than Oct. 15.

Bishop Mfg. Corp. Adds Five New Sales Organizations

Bishop Manufacturing Corp., Cedar Grove, N. J., manufacturers of Bi-Seal and other electrical tapes, has recently added two new sales outlets on the west coast, one in the Rocky Mountain area and two in the Southeast, to facilitate sales and service.

Waltham, De Witt & Krusi of San Francisco, Cal., will handle Bishop products in northern California and parts of Nevada; the Industrial Engineering Corp. of Los Angeles, Cal., will represent Bishop products in southern California and Arizona and the J. C. O'Donnell Co. of Denver, Colo., will cover sales in the Rocky Mountain states.

In the Southeast, Sheldon Storer & Associates, Cincinnati, O., will cover southern Ohio and Kentucky; the Public Service Supply Co., Inc., Cleveland, O., will cover northern Ohio.

America's Great Issue

"Today the greatest issue in America and all mankind is the encroachments of government to master our lives. . . . Our social and economic system is based upon free enterprise regulated to prevent monopoly and unfair competition. The state should only undertake business or public improvement enterprises where they are greater than the people can undertake for themselves."—HERBERT HOOVER, *former President of the United States.*

An 8-tier run of Soapstone OCT-O-DUCT provides a new telephone link down hard-rock Nob Hill to colorful Chinatown in San Francisco.

YOU CAN ACTUALLY SEE SOAPSTONE DUCT SAVE YOU MONEY

1 Trenchside delivery of Soapstone OCT-O-DUCT eliminates field inventory problems and makes certain your duct is at your job when you need it.

2 OCT-O-DUCT's convenient 4-foot lengths can be quickly installed by 2-men crews even in narrow and deep trenches.

3 OCT-O-DUCT's exclusive, flat-sided design eliminates the need for expensive interlayer spacers. Duct will not roll.

4 OCT-O-DUCT is connected in the trench with easy-to-apply circular couplings making possible fast, rhythmic, production-line installation.

The many time- and work-saving features of Soapstone OCT-O-DUCT and full information on the sizes, bends and accessories available from this 30-year-old Company are contained in our Catalog and Installation Manual. For your FREE copies, drop us a note on your letterhead.

SOAPSTONE DUCT COMPANY

3985 Beach Street, Oakland 8, California

Distributed in the West by

MAYDWELL & HARTZELL, INC.

SAN FRANCISCO, LOS ANGELES, SAN DIEGO, PHOENIX, PORTLAND, SEATTLE, SPOKANE

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Thomas J. Lyons Joins Sales Staff of Superior Cable

The addition of Thomas J. Lyons to the sales staff of the Superior Cable Corp., Hickory, N. C., has been announced by James H. Bowman, vice president in charge of sales.

T. J. LYONS

Mr. Lyons was formerly a division manager for the Cook Electric Co. in Chicago and more recently the manager of the Fred Bromm Co. in the same city. He is a 1948 graduate of the University of Illinois.

Farms with Telephones Continue Increase

The per cent of farms with telephones is double what it was in 1940 and continues to increase in most states, but at a decreasing rate except in the southern and southwestern States, according to the survey made as of July 1 each year by the Crop Reporting Board of the United States Department of Agriculture. The southern states lead the increase since 1940 primarily because of the low proportion of farms in those states having telephones.

Using U. S. Census data for 1940, 1945, and 1950 and yearly data from the Crop Reporting Board surveys beginning with 1947, comparisons are made to show rapid increase in the number of telephones in farm homes during the last 16 years.

Beginning with 1940, the North Atlantic States, the North Central, and the Mountain States made their largest percentage increases in farms with telephones during the 1940-45 period. For these areas the rate of the increase declined for the next two successive five-year periods.

In the remaining parts of the country, the largest increases, percentagewise, were during 1950-55.

ANOTHER
MAJOR IMPROVEMENT
IN GALVANIZED
TELEPHONE WIRE

Crapo
HTL-195

The New LOWER RESISTANCE
Extra-High Tensile Line Wire

FOR EXTREME LONG-SPAN, LOW-COST RURAL LINES

A combination of telephonic transmission qualities and physical strength never before attained in a galvanized steel telephone wire now is available in **Crapo** HTL-195. This new, extra-high tensile line wire with superior electrical characteristics makes possible spans to 600 feet in Heavy, 650 feet in Medium and 700 feet in Light Loading Districts. The result: up to 40% reduction in the number of pole structures required with marked savings in materials and in construction costs.

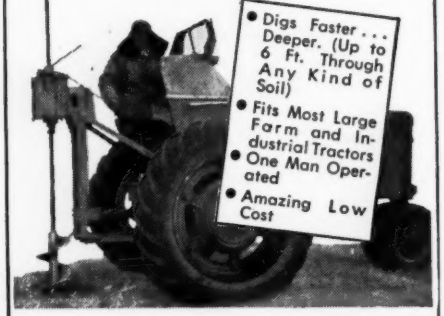
The voice transmission effectiveness of **Crapo** HTL-195 is comparable to that of **Crapo** HTL-135 — the high tensile steel line wire which has contributed so much to the expansion and improvement of rural telephony. The telephonic transmission quality of both **Crapo** HTL-195 and **Crapo** HTL-135 is superior to that of older grades of ferrous wire.

Crapo HTL-195 can be employed to best advantage where terrain and other conditions permit the use of extremely long spans, for joint use with power circuits and for extensions to one or more subscribers in remote areas.

Investigate the practical and economical advantages of this new, revolutionary conductor — product of continuing research by Indiana Steel & Wire Company, Inc., pioneers in the development of high tensile steel telephone wire. Write for complete information, including Manual of Engineering Data, No. A-195.

NOW! A HEAVY-DUTY
INDUSTRIAL DIGGER
that is TRACTOR MOUNTED

Designed for RUGGED DIGGING
• Telephone Poles • Footings
• Heavy Posts


• Digs Faster . . . Deeper. (Up to 6 Ft. Through Any Kind of Soil)
• Fits Most Large Farm and Industrial Tractors
• One Man Operated
• Amazing Low Cost

Prewitt's NEW INDUSTRIAL DIGGER allows one man to do the job it would ordinarily take a crew of men to do. P.T.O. driven, it utilizes full weight of rear of tractor to force auger into ground. Saves time and money!

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WRITE FOR FREE LITERATURE
J.R. PREWITT AND SONS SINCE 1929
Dept. 304
Pleasant Hill, Missouri
Phone 40

NATCO
CLAY CONDUIT

The proved and standard protection for Underground Telephone Cables. Highest quality and full line of shapes.

NATCO CORPORATION
327 Fifth Avenue, Pittsburgh 22, Pa.

In 1940, there were only seven states in which as many as 50 per cent of the farms had telephone service. By 1945, eight more states had reached the 50 per cent mark.

The 1950 census showed 28 states having 50 per cent or more of their farms with telephones. As of 1955, only 17 states remained under 50 per cent with 13 states having 75 per cent or more.

Since 1947, the percentages of farms with telephone service has continued to increase in practically all states. However, in some Northeastern states there has been a reduction in the actual number of telephones even though the percentage increased slightly because of a decline in the total number of farms.

As of July 1, 1956, states having the highest percentage of farms receiving telephone service were Connecticut, Massachusetts and New Jersey.

The following table gives "per cent farms with telephones" as of July 1 for the selected years, by states:

State and Division	1940[1]	1945[1]	1947	1950[1]	1953	1954	1955	1956
Maine	44	54	61	64	68	70	74	78
N. H.	52	63	70	75	78	78	79	80
Vt.	47	55	61	70	72	73	76	76
Mass.	54	71	73	78	86	88	90	90
R. I.	50	65	69	77	81	82	84	84
Conn.	62	77	78	84	88	92	94	94
N. Y.	39	52	56	70	80	82	83	85
N. J.	36	53	59	72	81	84	88	90
Pa.	32	40	45	53	64	66	69	72
Ohio	38	50	54	60	66	69	72	72
Ind.	45	55	57	62	66	71	72	74
Ill.	50	61	63	65	71	73	74	78
Mich.	28	39	42	53	60	64	68	69
Wis.	39	48	52	59	63	66	68	70
Minn.	45	55	56	60	65	68	69	71
Iowa	67	79	80	82	84	86	88	88
Mo.	39	45	45	46	50	52	53	54
N. Dak.	28	34	39	42	44	44	46	48
S. Dak.	34	45	46	56	58	58	60	62
Neb.	43	56	60	65	70	72	72	74
Kans.	51	65	66	68	71	74	75	79
Del.	25	40	53	67	77	80	84	86
Md.	31	42	44	54	64	66	68	70
Va.	15	18	19	24	30	31	34	38
W. Va.	20	22	25	27	32	32	33	36
N. C.	4	5	6	8	11	15	18	21
S. C.	3	4	4	8	14	16	20	22
Ga.	4	6	6	9	16	21	22	27
Fla.	6	10	12	18	25	31	36	42
Ky.	16	18	18	21	24	24	28	31
Tenn.	13	16	16	19	26	29	32	37
Ala.	4	5	6	8	13	14	16	19
Miss.	3	4	4	6	11	12	16	21
Ark.	5	7	8	10	14	15	18	20
La.	3	5	7	12	21	24	28	32
Okla.	18	25	28	33	40	42	46	48
Texas	13	18	20	24	33	36	39	42
Mont.	17	21	24	28	33	36	40	46
Idaho	29	42	47	55	63	66	68	70
Wyo.	24	31	33	38	44	49	54	56
Colo.	33	46	52	59	64	66	68	68
N. Mex.	7	11	12	15	23	26	28	31
Ariz.	14	36	38	42	50	54	58	60
Utah	20	32	42	52	66	70	76	76
Nev.	34	44	46	50	57	60	62	64
Wash.	32	44	50	57	70	72	76	77
Ore.	34	41	45	50	64	68	72	76
Calif.	34	44	46	57	71	75	78	80
U.S.	25.0	31.8	33.7	38.3	44.2	46.7	49.2	51.9

[1]Bureau of Census, Dept. of Commerce.

Two Companies Install New Microwave Systems

Two southern Independent telephone companies have installed new microwave systems.

Southeastern Telephone Co. of Tallahassee, Fla., put into service early in June two additional Philco communications microwave systems.

This will make a total of five systems integrated into the company's microwave network in the Crestview-Ft. Walton Beach area over a three-year period. The network has eight main stations.

Two new Philco microwave terminals will be installed within the very near future when the sixth system is integrated into Southeastern's communications network. This new system will parallel a system now in operation between Tallahassee and Monticello.

Linking its central toll center at Crestview to Ft. Walton Beach, Eglin

XUM

Air Force Base and Destin, Fla., with low cost dial service, Southeastern operates a network of Philco multiple-channel microwave trunk line carriers.

Multiple trunkline switching at Destin and Ft. Walton Beach exchanges is completely automatic.

Southeastern standardized on microwave equipment to minimize the effect of extreme weather conditions on transmission lines, the Philco company states. The need for submerged cable in the six-mile over-water hop from Destin to Ft. Walton Beach has been eliminated entirely by the microwave equipment, they report.

Virginia Telephone & Telegraph Co. has taken over full operation of a new Philco communications microwave system between Blackstone and South Hills, Va.

Providing 24 voice channels, this three-station duplex system was switched over to toll traffic at midnight on June 1.

The new microwave system will furnish reliable toll service for the many subscribers in these two areas.

The exchange at South Hill is new and the ultra-modern automatic equipment has replaced the manual operation.

Serious Situation

". . . at the present time we are actually taking from the people in cash each year 110 billions of dollars—by that I mean the federal government and the Social Security and the state and local governments. We are taking $110 billion out of a total national income of $335 billion, which is 33 per cent. I make the prediction—I do not know when we will tell whether it's correct or not—that it is impossible for this great private enterprise system of ours to continue for a long period of time when 33 per cent of the earnings of the people are taken for taxes in cash each year. So that's a very serious situation." — HARRY F. BYRD, *U. S. Senator from Virginia.*

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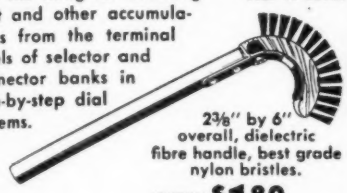

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